

# Service Manual

Dolby NR-Equipped  
Stereo Double Cassette Deck

Cassette Deck  
**RS-TR333**



\* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

**Colour**

(K)... Black Type

**Area**

Suffix for Model No.	Area	Colour
(P)	U.S.A.	(K)
(PC)	Canada.	
(EB)	Great Britain.	
(EG)	Germany and Italy./ Continental Europe.	
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	
(PX)	Far East-PX	

## RS-T330R MECHANISM SERIES (AR300)

## SPECIFICATIONS

### ■ CASSETTE DECK SECTION

<b>Deck system</b>	Stereo cassette deck
<b>Track system</b>	4-track, 2-channel
<b>Recording system</b>	AC bias
<b>Bias frequency</b>	80kHz
<b>Erasing system</b>	AC erase
<b>Heads</b>	
Deck 1	Playback head (Permalloy) × 1
Deck 2	Recording/Playback head (Permalloy) × 1 Erasing head (Double-gap ferrite) × 1
<b>Motors</b>	
Deck 1	Capstan/reel table drive (DC servo motor) × 1
Deck 2	Capstan/reel table drive (DC servo motor) × 1
<b>Tape speed</b>	4.8cm/sec. (17/8 ips)
<b>Wow and flutter</b>	
For (P, PC) areas	0.1% (WRMS)
For others	0.07% (WRMS) ±0.2% (DIN)
<b>Fast forward and rewind times</b>	Approx. 110 seconds with C-60 cassette tape
<b>Frequency response (Dolby NR off)</b>	
<b>NORMAL</b>	40Hz~15kHz±3dB
For (P, PC) areas	20Hz~17kHz
For others	20Hz~16kHz (DIN)
<b>CrO<sub>2</sub></b>	40Hz~15kHz±3dB
For (P, PC) areas	20Hz~17kHz
For others	20Hz~16kHz (DIN)

<b>METAL</b>	40Hz~16kHz±3dB
For (P, PC) areas	20Hz~18kHz
For others	20Hz~17kHz (DIN)
<b>S/N</b> (Signal level=max recording level, CrO <sub>2</sub> type tape)	
NR off	56dB (A weighted)
Dolby B NR on	66dB (CCIR)
Dolby C NR on	74dB (CCIR)
<b>Input sensitivity and impedance</b>	
LINE IN	60mV/47kΩ
<b>Output voltage and impedance</b>	
LINE OUT	400mV/800Ω
<b>HEADPHONES</b>	30mV/(8Ω) (Load impedance 8Ω~600Ω)

### ■ GENERAL

<b>Power consumption</b>	19W
<b>Power supply</b>	
For (P, PC) areas	AC 60Hz, 120V
For (GC, PX) areas	AC 50/60Hz, 110V/127V/220V/240V
For others	AC 50/60Hz, 230~240V
<b>Dimensions (W × H × D)</b>	430 × 136 × 290mm (16 <sup>15</sup> / <sub>16</sub> " × 5 <sup>3</sup> / <sub>8</sub> " × 11 <sup>13</sup> / <sub>32</sub> ")
<b>Weight</b>	4.7kg (10.4lb.)

#### Note:

Specifications are subject to change without notice.  
Weight and dimensions are approximate.

# Technics

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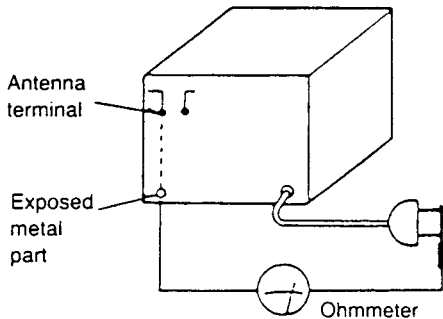
SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

- 1. Before servicing, unplug the power cord to prevent an electric shock.
- 2. When replacing parts, use only manufacturer's recommended components for safety.
- 3. Check the condition of the power cord. Replace if wear or damage is evident.
- 4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
- 5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

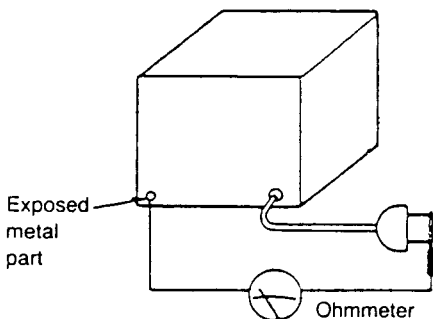
INSULATION RESISTANCE TEST

- 1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
- 2. Turn on the power switch.
- 3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3 MΩ and 5.2 MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



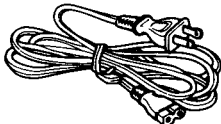
(Fig. A)  
Resistance=3 MΩ-5.2 MΩ



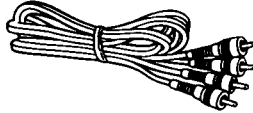
(Fig. B)  
Resistance=Approx. ∞

- 4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.


ACCESSORIES




AC power supply cord  
(RJA0004)..... (GC, PX)  
(RJA0019-1K)..... (EG)  
(SJA172)..... (PC)  
(SJA173)..... (GN)  
(SJA175-1)..... (P)  
(SJA193)..... (EB)  
..... 1 pc.




Stereo connection cable  
(SJP2249-3) ..... 2 pcs.




Stereo mini cable  
(SJP2257T) ..... 2 pcs.



Remote control cable ..... 1 pc.



Power plug adaptor  
(SJP9215)..... 1 pc.  
(For GC, PX areas only)



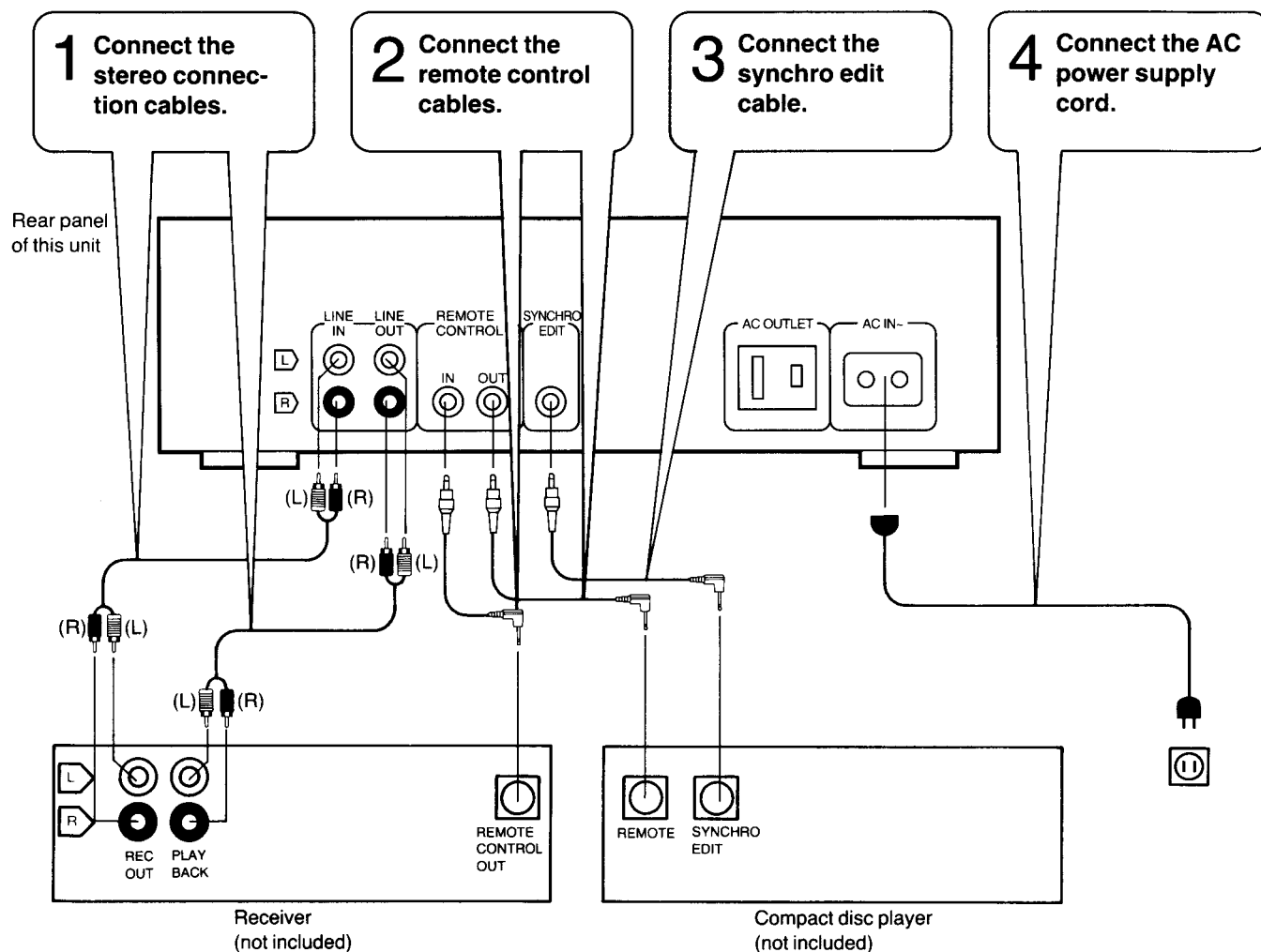
Synchro edit cable ..... 1 pc.

Note: Configuration of AC power supply cord differs according to area.

## ■ CONNECTIONS

Before making connections, be sure that the power to this unit and all other system components are turned off first.

See the operating instructions of the receiver or the compact disc player for details.



- 1 Connect the stereo connection cables (included) to the REC OUT and PLAYBACK terminals of the receiver.
- 2 Use the included remote control cable to connect the REMOTE CONTROL INPUT to the REMOTE CONTROL OUTPUT on the Receiver.

The following functions can be operated by remote-control (When connected to the appropriate Technics receiver): Playback, Stop, Pause, Rewind/fast-forward search, Record, Auto record mute, and 1-2 (A-B) deck selection.

The REMOTE CONTROL "OUT" terminal is provided to connect a Technics Compact Disc Player or Graphic Equalizer.

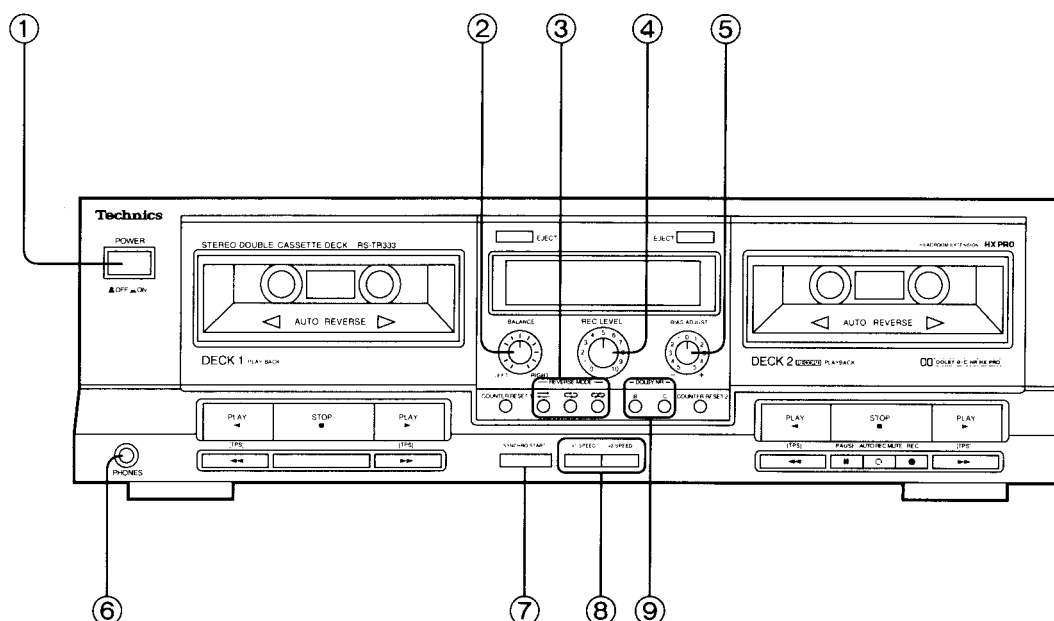
- 3 Connect the synchro edit cable (included) to the "SYNCHRO EDIT" terminal of selected Technics compact disc player.
- 4 Connect the power supply cord (included) to the household AC outlet (AC 120V/60 Hz, P, PC areas only).

The REMOTE CONTROL and SYNCHRO EDIT terminals can only be used with selected Technics Components. Please contact your dealer for details.

### "AC OUTLET" (UNSWITCHED: P, PC areas only)

Power is always available, regardless of the unit's power switch setting. Audio equipment rated up to 100 W can be connected.

## LOCATION OF CONTROL



## Control section

### Controls common to both tape decks

#### ① Power switch (POWER)...For P, PC areas

Press (⏻) to switch the power on.  
Press again (⏻) to switch the power off.

#### Power "STANDBY ⏻ /ON" switch...For others (POWER ⏻ STANDBY ⏻ ON)

This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

#### ② Recording-balance control (BALANCE)

This control is used to balance the left and right sound levels of deck 2 during recording.

#### ③ Reverse-mode selectors (REVERSE MODE)

These selectors are used for selection of the reverse mode (for either playback or recording).

#### ④ Recording-level control (REC LEVEL)

This control is used to regulate the recording level of deck 2

#### ⑤ Bias-adjustment control (BIAS ADJUST)

The frequency response for each tape type can be equalized by using this control (for only deck 2).

#### ⑥ Headphones jack (PHONES)

#### ⑦ Synchro-start button (SYNCHRO START)

This button is used to start a edit-recording, simultaneously starting deck 1 (the playback deck) and deck 2 (the recording deck).

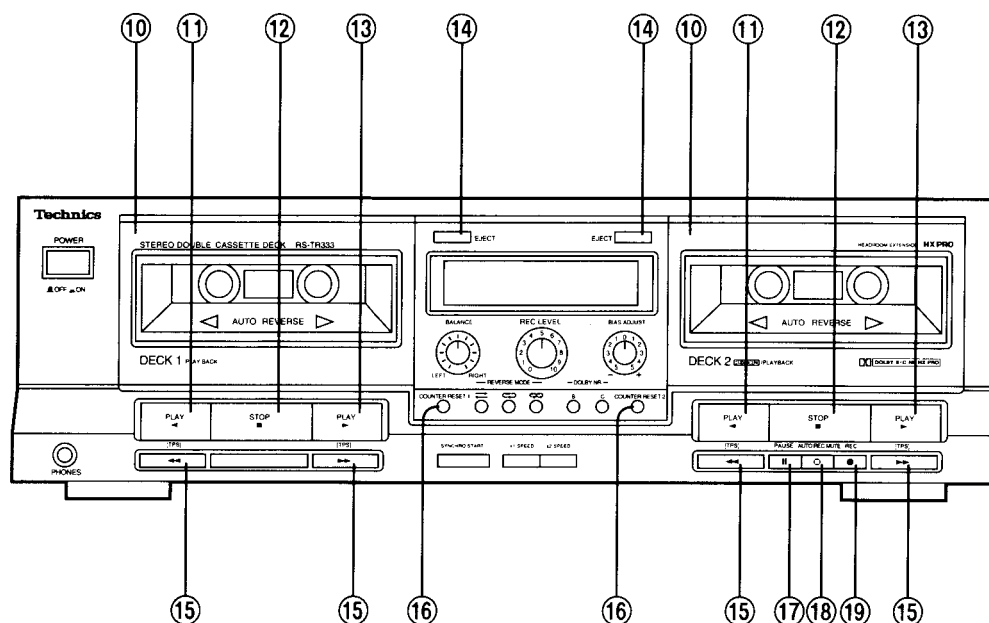
#### ⑧ Edit-recording tape-speed buttons (×1 SPEED, ×2 SPEED)

These buttons are used to select the recording speed during edit-recording.

#### ⑨ Dolby noise-reduction buttons (DOLBY NR)

These buttons are used to reduce the hissing noise heard from the tape. This unit is provided with both the B-type and C-type noise-reduction systems.

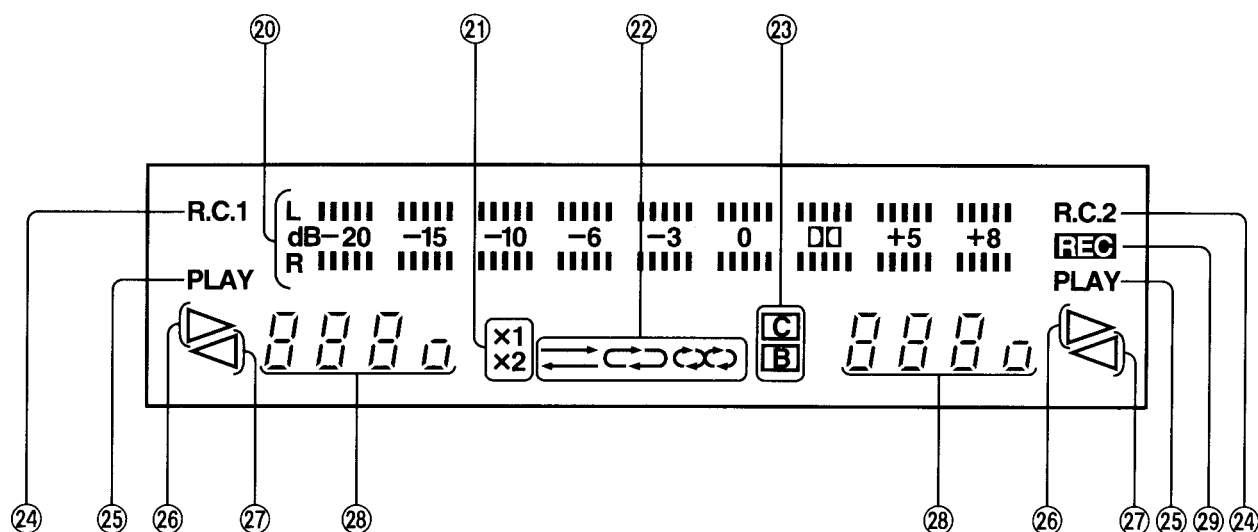




## Controls applicable to tape deck 1 and/or 2

- ⑩ **Cassette holder**
- ⑪ **Reverse-side playback button (◀ PLAY)**  
This button is used to start the playback or recording (of deck 2 only) of side "B" of the cassette.  
(The tape will move in the right-to-left direction.)
- ⑫ **Stop button (■ STOP)**  
This button is used to stop the tape movement.
- ⑬ **Forward-side playback button (▶ PLAY)**  
This button is used to start the playback or recording (of deck 2 only) of side "A" of the cassette.  
(The tape will move in the left-to-right direction.)
- ⑭ **Eject button (EJECT)**  
This button is used to open the cassette holder.
- ⑮ **Rewind/fast-forward search button (◀◀/▶▶ TPS)**  
These TPS (Tape Program Search) buttons are used to advance or rewind the tape, or to easily and quickly search for the program's beginning of the tape.
- ⑯ **Tape counter reset button (COUNTER RESET 1, COUNTER RESET 2)**  
This button is used to reset the tape counter indication to "000".
- ⑰ **Pause button (|| PAUSE)**  
This button is used to temporarily stop the tape playback or recording of deck 2 only.
- ⑱ **Automatic-record-muting button (□ AUTO REC MUTE)**  
This button is used to make a silent interval on the tape while recording is in progress on deck 2.
- ⑲ **Record button (● REC)**  
This button is used to set deck 2 to the recording stand-by mode.

(Continued on next page)



## Display section

### Indicators common to both tape decks

- ②① **Input level meter**  
During playback, this meter indicates the level of the recorded sound.  
During recording, it indicates the level being recorded, adjusted by the recording-level control.
- ②② **Edit-recording tape-speed indicators (×1, ×2)**  
One of these indicators illuminates to show which of the edit recording speeds was selected by pressing one of the edit-recording tape-speed buttons.
- ②③ **Reverse-mode indicators (↔, ⇄, ⇄)**  
Each indicator illuminates to show which of the reverse modes was selected by the reverse-mode selectors.
- ②④ **Dolby noise-reduction indicators (B, C)**  
Each indicator illuminates to show the type of Dolby noise-reduction system selected by pressing one of the Dolby noise-reduction buttons.

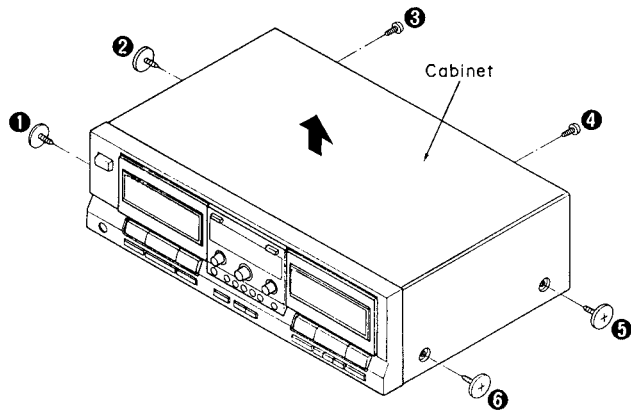
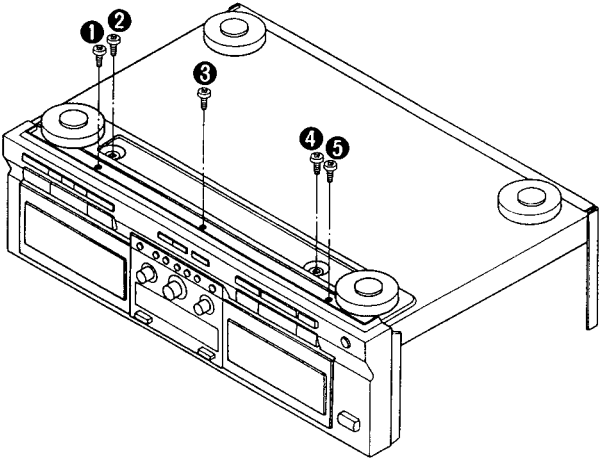
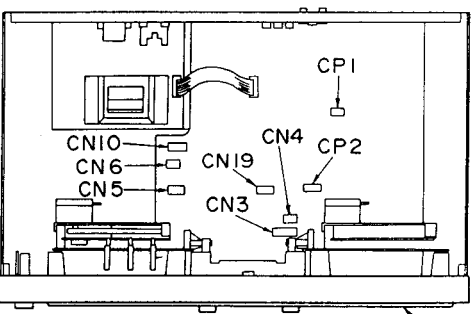
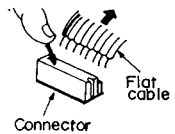
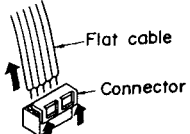
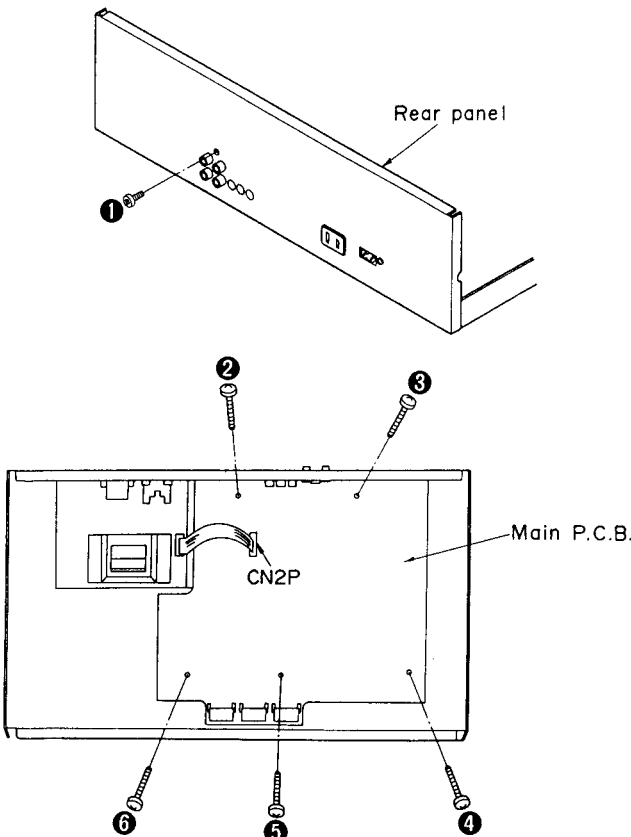
### Indicators applicable only to tape deck 1 or 2

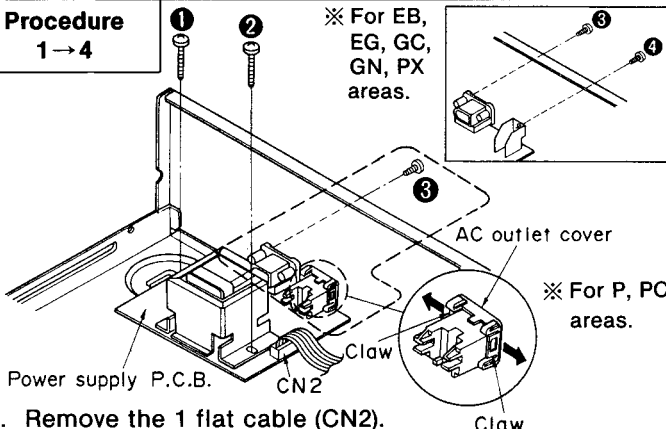
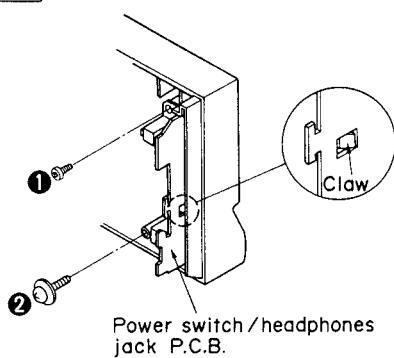
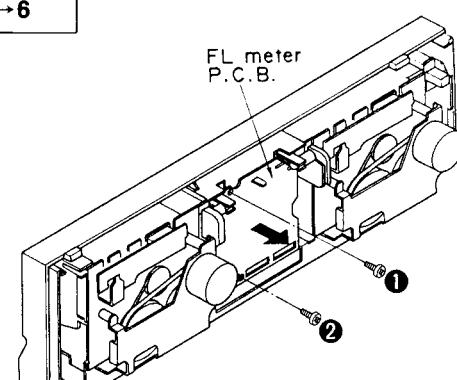
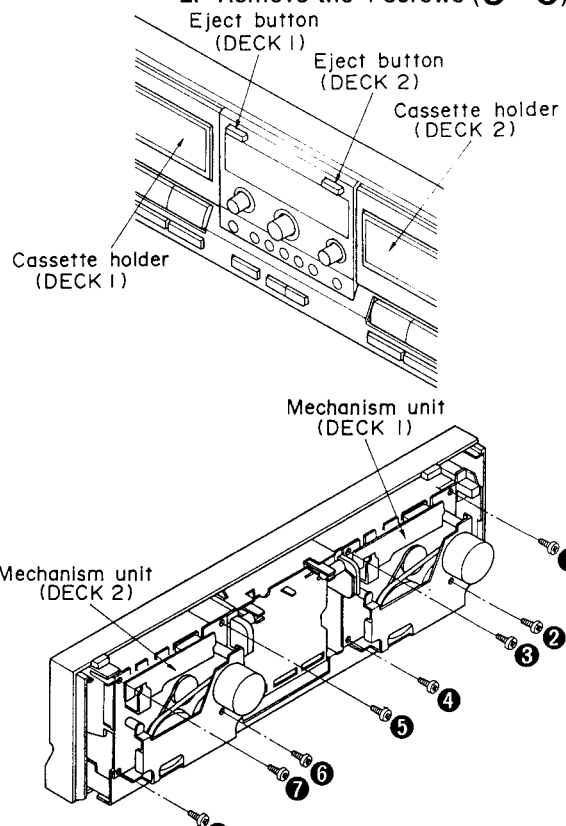
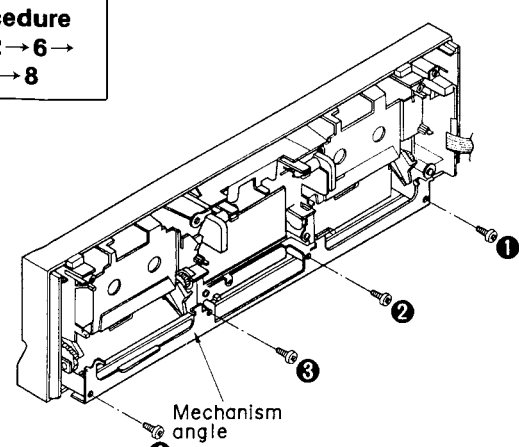
- ②⑤ **Remote-control indicator (R.C.1, R.C.2)**  
Illuminates to indicate that this unit can now be controlled by the remote-control transmitter of the appropriate receiver connected.
- ②⑥ **Playback indicator (PLAY)**  
When this indicator illuminates steadily, it indicates that this unit is in the playback or recording mode (of deck 2 only).  
When flashing continually, indicates that deck 2 is in the pause mode or in the recording stand-by mode.
- ②⑦ **Forward-side indicator (▷)**  
Illuminates during playback or recording (of deck 2 only), to indicate that side "A" of the tape is being used.
- ②⑧ **Reverse-side indicator (◁)**  
Illuminates during playback or recording (of deck 2 only), to indicate that side "B" of the tape is being used.
- ②⑨ **Tape counter**  
Indicates the amount of tape movement.  
The least significant digit indicates tape movement.
- ②⑩ **Recording indicator (REC)**  
Illuminates to indicate that deck 2 is in the recording stand-by mode or is recording.

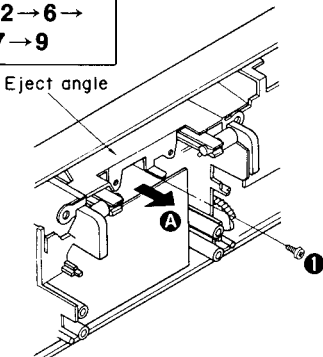
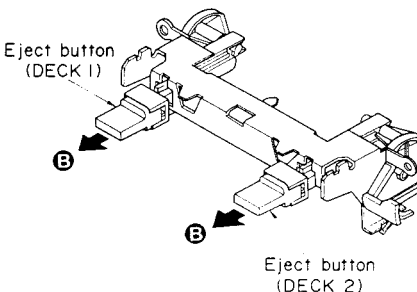
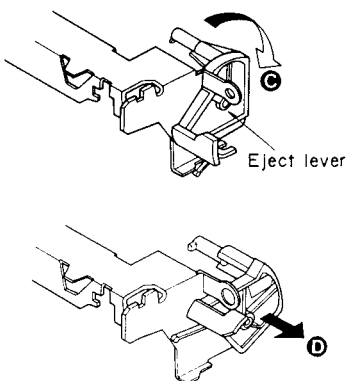
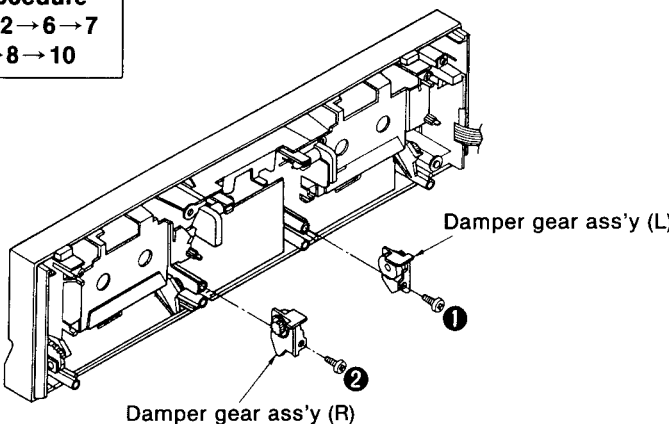
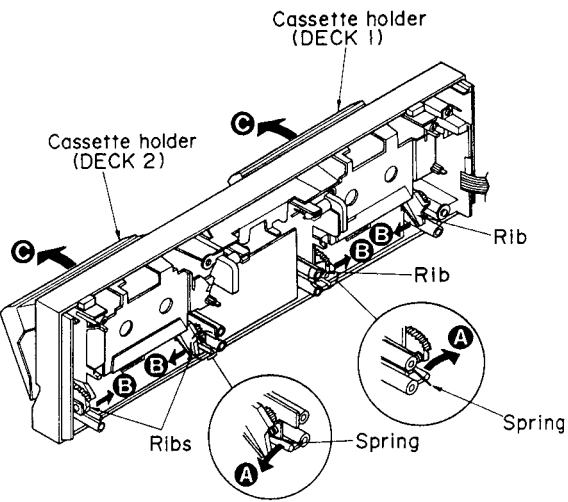
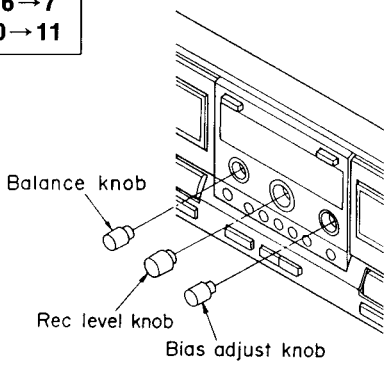
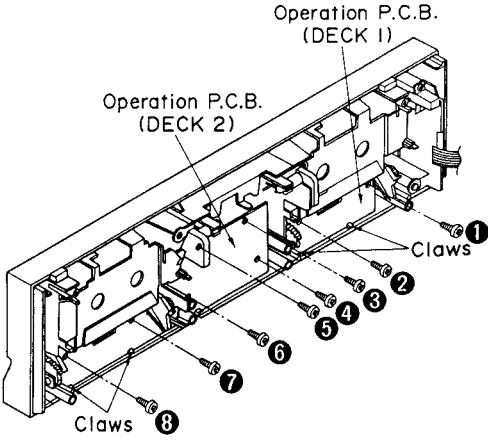
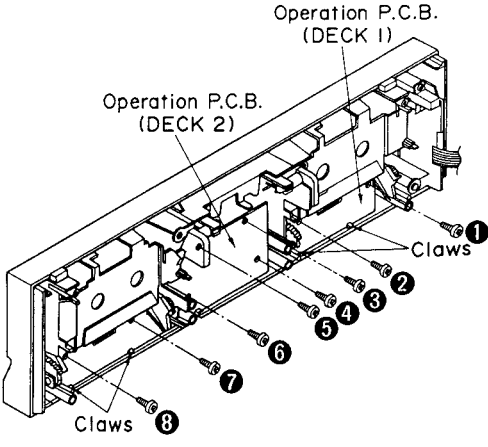
## DISASSEMBLY INSTRUCTIONS

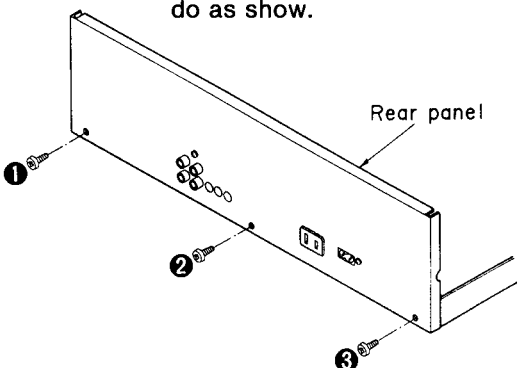
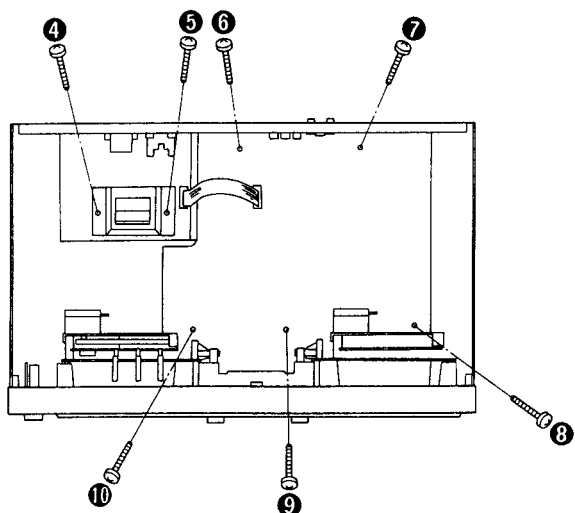
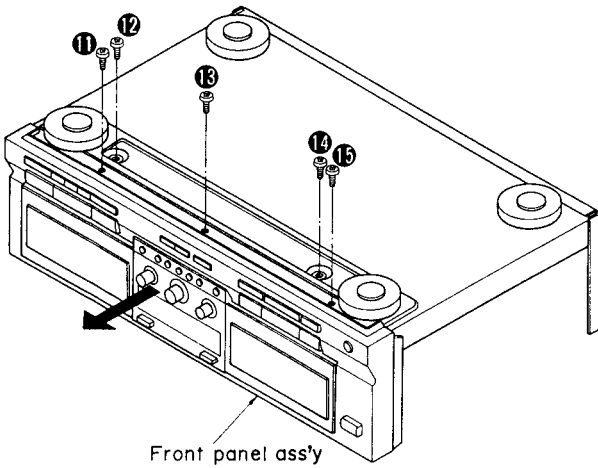
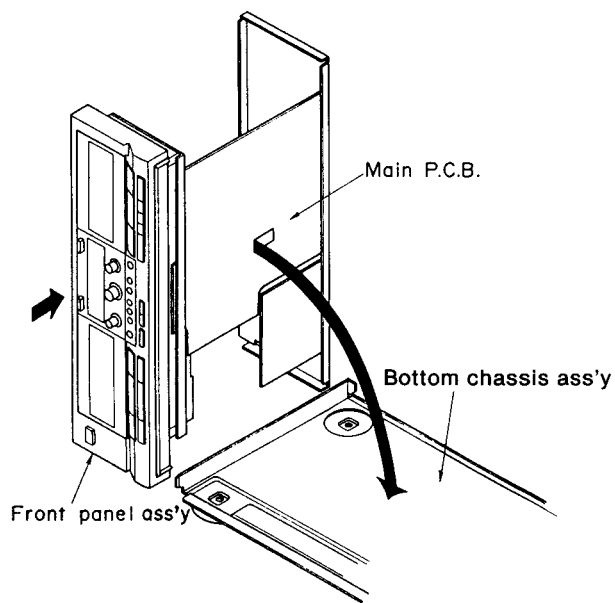
### "ATTENTION SERVICER"

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	Removal of the Cabinet	Ref. No. 2	Removal of the Front Panel Ass'y
Procedure 1	 <p>• Remove the 6 screws (①～⑥).</p>	 <p>1. Remove the 5 screws (①～⑤).</p>  <p>2. Remove the 2 connectors (CP1, CP2). 3. Remove the 6 flat cables (CN3, CN4, CN5, CN6, CN10, CN19). 4. Remove the front panel ass'y in the direction of arrow.</p>	
Ref. No. 3	Removal of the Main P.C.B.	<h3>How to remove the Flat Cable</h3> <ul style="list-style-type: none"> <li>• Pull out the flat cable while pressing the connector. (CN3, CN5)</li> </ul>   <p>1. Lift the connector. 2. Pull out the flat cable. (CN4, CN6, CN10)</p>	
Procedure 1→2→3	 <p>1. Remove the 6 screws (①～⑥) 2. Remove the 1 flat cable (CN2P).</p>		

Ref. No. 4	Removal of the Power Supply P.C.B.	Ref. No. 5	Removal of the Power Switch Headphones Jack P.C.B.
Procedure 1→4	 <p>※ For EB, EG, GC, GN, PX areas.</p> <p>AC outlet cover</p> <p>※ For P, PC areas.</p> <p>Power supply P.C.B.</p> <p>CN2</p> <p>Claw</p> <p>Claw</p> <ol style="list-style-type: none"><li>1. Remove the 1 flat cable (CN2).</li><li>2. Remove the 3 screws (①~③).</li><li>3. Remove the 1 screw (④). (For EB, EG, GC, GN, PX areas)</li><li>4. Release the 2 claws of the AC outlet cover. (For P, PC areas)</li></ol>	Procedure 1→2→5	 <p>Claw</p> <p>Power switch / headphones jack P.C.B.</p> <ol style="list-style-type: none"><li>1. Remove the 2 screws (①, ②).</li><li>2. Release the 1 claw.</li></ol>
Ref. No. 6	Removal of the FL Meter P.C.B.	Ref. No. 7	Removal of the Mechanism Units (DECK 1, DECK 2)
Procedure 1→2→6	 <p>FL meter P.C.B.</p> <ol style="list-style-type: none"><li>1. Remove the 2 screws ((①, ②).</li><li>2. Remove the FL meter P.C.B. in the direction of arrow.</li></ol>	Procedure 1→2→7	<p>■ Mechanism Unit (DECK 1)</p> <ol style="list-style-type: none"><li>1. Press the eject button and open the cassette holder.</li><li>2. Remove the 4 screws (①~④).</li></ol> <p>■ Mechanism Unit (DECK 2)</p> <ol style="list-style-type: none"><li>1. Press the eject button and open the cassette holder.</li><li>2. Remove the 4 screws (⑤~⑧).</li></ol>  <p>Eject button (DECK 1)</p> <p>Eject button (DECK 2)</p> <p>Cassette holder (DECK 2)</p> <p>Cassette holder (DECK 1)</p> <p>Mechanism unit (DECK 1)</p> <p>Mechanism unit (DECK 2)</p> <ol style="list-style-type: none"><li>①</li><li>②</li><li>③</li><li>④</li><li>⑤</li><li>⑥</li><li>⑦</li><li>⑧</li></ol>
Ref. No. 8	Removal of the Mechanism Angle		
Procedure 1→2→6→7→8	 <p>Mechanism angle</p> <ol style="list-style-type: none"><li>①</li><li>②</li><li>③</li><li>④</li></ol> <p>• Remove the 4 screws (①~④).</p>		

<b>Ref. No.</b> 9	<b>Removal of the Eject Angle, Eject Buttons, and Eject Lever</b>	
<b>Procedure</b> 1→2→6→ 7→9		
		
<b>Ref. No.</b> 10	<b>Removal of the Cassette Holder (DECK 1, DECK 2)</b>	
<b>Procedure</b> 1→2→6→7 →8→10		
		
<b>Ref. No.</b> 11	<b>Removal of the Operation (DECK 1) P.C.B. and Operation (DECK 2) P.C.B.</b>	
<b>Procedure</b> 1→2→6→7 →8→10→11		
		
<b>1. Remove the balance knob, rec level knob and bias adjust knob.</b>	<b>2. Remove the 8 screws (1~8).</b> <b>3. Release the 4 claws.</b>	

Ref. No. 12	How to check the Main P.C.B.	
Procedure 1→12	<ul style="list-style-type: none"> <li>When checking the soldered surfaces of main P.C.B. and replacing the parts, do as show.</li> </ul>	
	 <p>Rear panel</p>	
1. Remove the 3 screws (①～③).		2. Remove the 7 screws (④～⑩).
 <p>Front panel ass'y</p>		 <p>Main P.C.B. Bottom chassis ass'y Front panel ass'y</p>
3. Remove the 5 screws (⑪～⑮).	4. Remove the front panel ass'y in the direction of arrow.	5. Remove the bottom chassis ass'y. 6. Reinstall the front panel to the main P.C.B.



## MEASUREMENTS AND ADJUSTMENTS

### Measurement Condition

- Recording-level control; Maximum
- Recording-balance control; Center
- Bias-adjustment control; Center
- Reverse-mode selector switch;  $\rightleftharpoons$
- Edit-recording tape-speed selector switch; X1
- Dolby NR switch; Off

- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature  $20 \pm 5^{\circ}\text{C}$  ( $68 \pm 9^{\circ}\text{F}$ )

### Measuring instrument

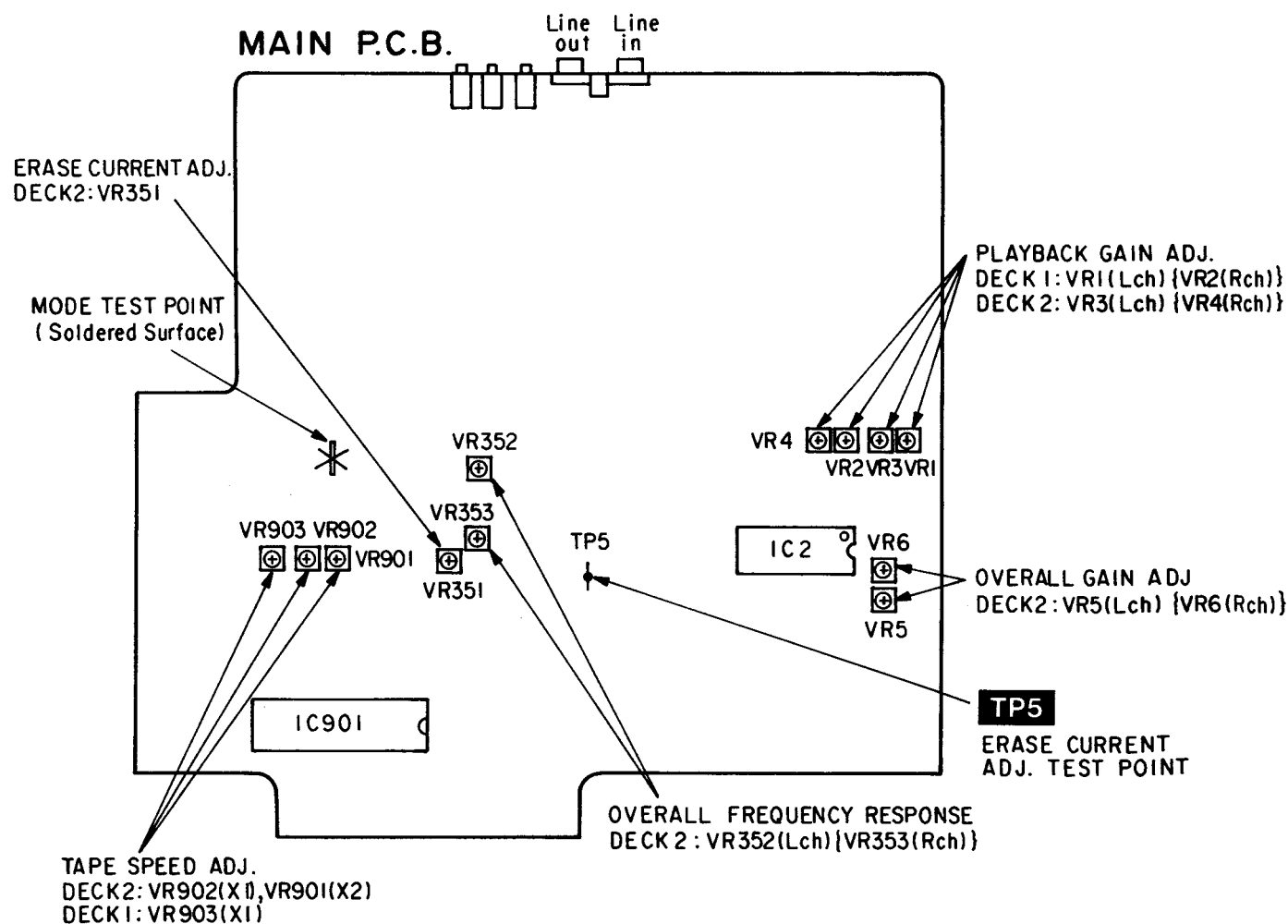
- EVM (Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator

- ATT (Attenuator)
- DC voltmeter
- Resistor ( $600\Omega$ )

### Test tape

- Head azimuth adjustment (8kHz,  $-20\text{dB}$ ); QZZCFM
- Tape speed adjustment (3kHz,  $-10\text{dB}$ ); QZZCWAT
- Playback gain adjustment (315Hz,  $0\text{dB}$ ); QZZCFM
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz,  $-20\text{dB}$ ); QZZCFM
- Overall frequency response, Overall gain adjustment, Erase current adjustment  
Normal reference blank tape; QZZCRA  
CrO<sub>2</sub> reference blank tape; QZZCRX  
Metal reference blank tape; QZZCRZ

### Adjustment Points



### HEAD AZIMUTH ADJUSTMENT (DECK 1/2)

1. Playback the azimuth adjustment portion (8kHz, -20dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the output of the R-CH are maximized.
2. Perform the same adjustment in the play mode.
3. After the adjustment, apply screwlock to the azimuth adjusting screw.

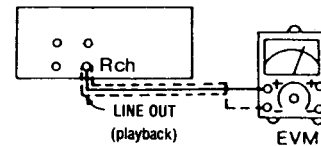


Fig. 1

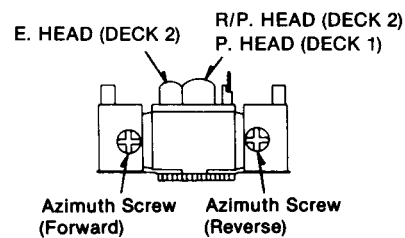


Fig. 2

### TAPE SPEED ADJUSTMENT (DECK 1/2)

#### Normal speed

1. Shift the edit-recording tape-speed selector switch to "X1" and press the synchro-start button.
2. Playback the middle portion of the test tape (QZZCWAT).
3. Adjust Deck 1=VR903 and Deck 2=VR902 so that the output is within the standard value.

#### High speed

4. Shift the edit-recording tape-speed switch selector to "X2" and press the synchro-start button.
5. Playback the middle portion of the test tape (QZZCWAT).
6. Adjust Deck 2=VR901 so that the output is within the standard value.

**Note:** The Normal speed adjustment must be done before the High speed adjustment.

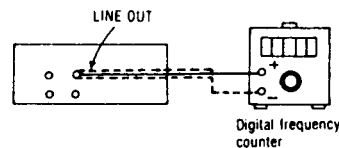


Fig. 3

**(DECK 1) Standard value: 3000 ± 15 Hz [Normal (X1)], 6000 ± 60 Hz [High (X2), only confirmation]**  
**(DECK 2) Standard value: 3000 ± 15 Hz [Normal (X1)], DECK 1 measured value ± 30 [High (X2)]**

### PLAYBACK GAIN ADJUSTMENT (DECK 1/2)

1. Playback the gain adjusted portion (315Hz, 0dB) of the test tape (QZZCFM).
2. Adjust Deck 1=VR1 (L-CH) [[VR2 (R-CH)]] and Deck 2=VR3 (L-CH) [[VR4 (R-CH)]] so that the output is within the standard value.

**Standard value: 0.4V ± 0.5dB**

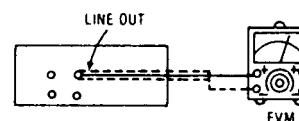


Fig. 4

### PLAYBACK FREQUENCY RESPONSE (DECK 1/2)

1. Playback the frequency response portion (315Hz, 12.5kHz~63Hz, -20dB) of the test tape (QZZCFM).
2. Assure that the frequency response is within the range shown in Fig. 6 for both L-CH and R-CH.

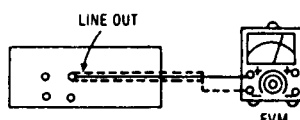


Fig. 5

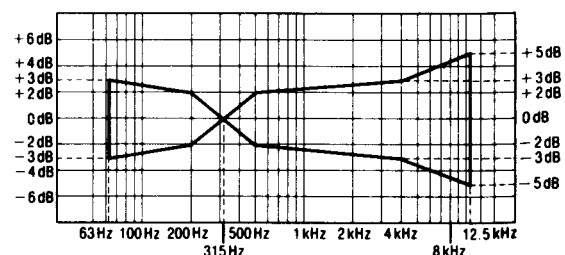


Fig. 6

### ERASE CURRENT ADJUSTMENT (DECK 2)

1. Insert the Metal blank test tape (QZZCRZ) and set the unit to the Record Pause mode.
2. Adjust VR351 so that the output between TP5 and GND is within the standard value.

**Standard value:  $190 \pm 5$  mA (Metal)...EVM Reading:  $190 \pm 5$  mV**

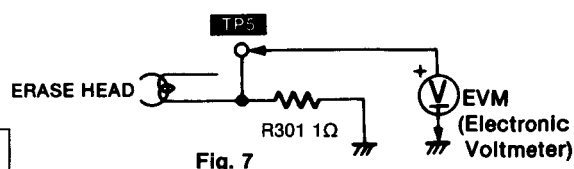


Fig. 7

### OVERALL FREQUENCY RESPONSE (DECK 2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Apply a reference input signal (1kHz, -24dB) through an attenuator.
3. Attenuate the signal by 20dB and adjust the frequency from 50Hz~10kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in Fig. 8 in comparison to the reference frequency (1kHz).
6. If it is not within the standard range, adjust VR352 (L-CH) and VR353 (R-CH) so that the frequency level is within the standard range.
  - Level up in high frequency range.....  
Increase the bias current.
  - Level down in high frequency range.....  
Decrease the bias current.
7. Repeat steps 2~6 above using the CrO<sub>2</sub> tape (QZZCRX) and the Metal tape (QZZCRZ) increasing the frequency range to 12.5kHz (50Hz~12.5kHz).
8. Assure that the level is within the range shown in Fig. 9.

Normal Overall frequency response chart (NR OUT)

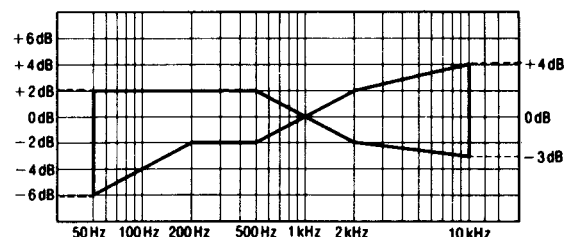


Fig. 8

CrO<sub>2</sub> Metal Overall frequency response chart (NR OUT)

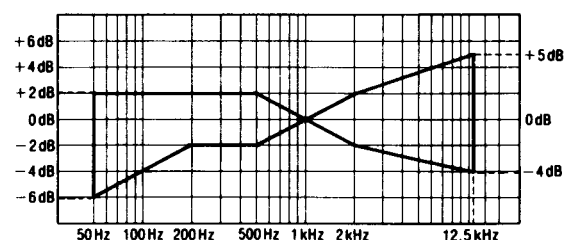


Fig. 9

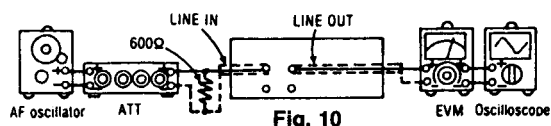


Fig. 10

### OVERALL GAIN ADJUSTMENT (DECK 2)

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record pause mode.
2. Apply a reference input signal (1kHz, -24dB). Attenuate the output so that its level becomes 0.4V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.
5. If it is not within the standard value, adjust VR5 (L-CH) and VR6 (R-CH).
6. Repeat the step 2~5 above until the output is within the standard value.

**Standard value:  $0.4V \pm 0.5$  dB**

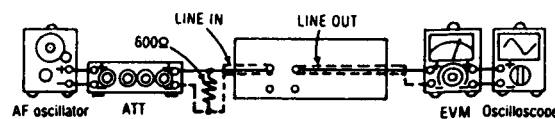


Fig. 11

1

2

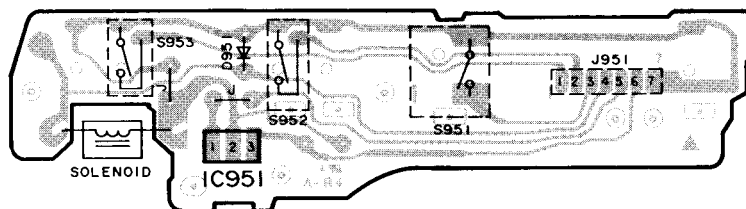
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4

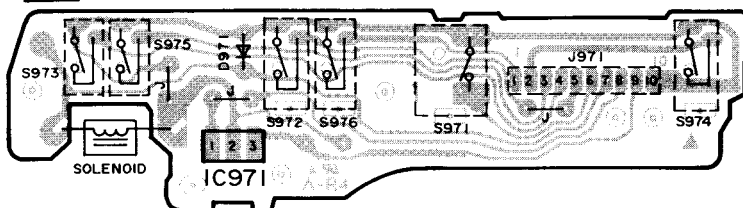
5

## PRINTED CIRCUIT BOARDS

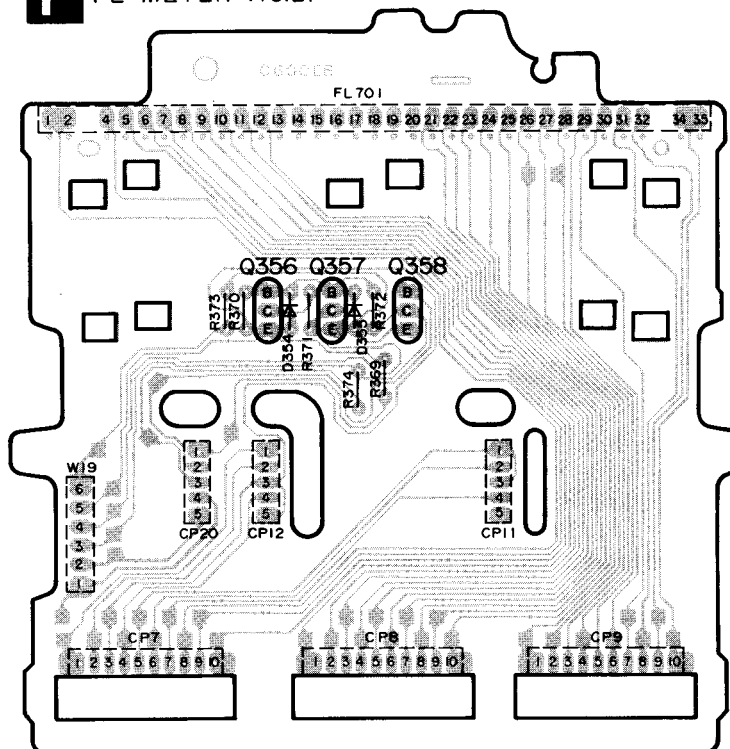
**D** MECHANISM (DECK 1) P.C.B.



**C** MECHANISM (DECK 2) P.C.B.

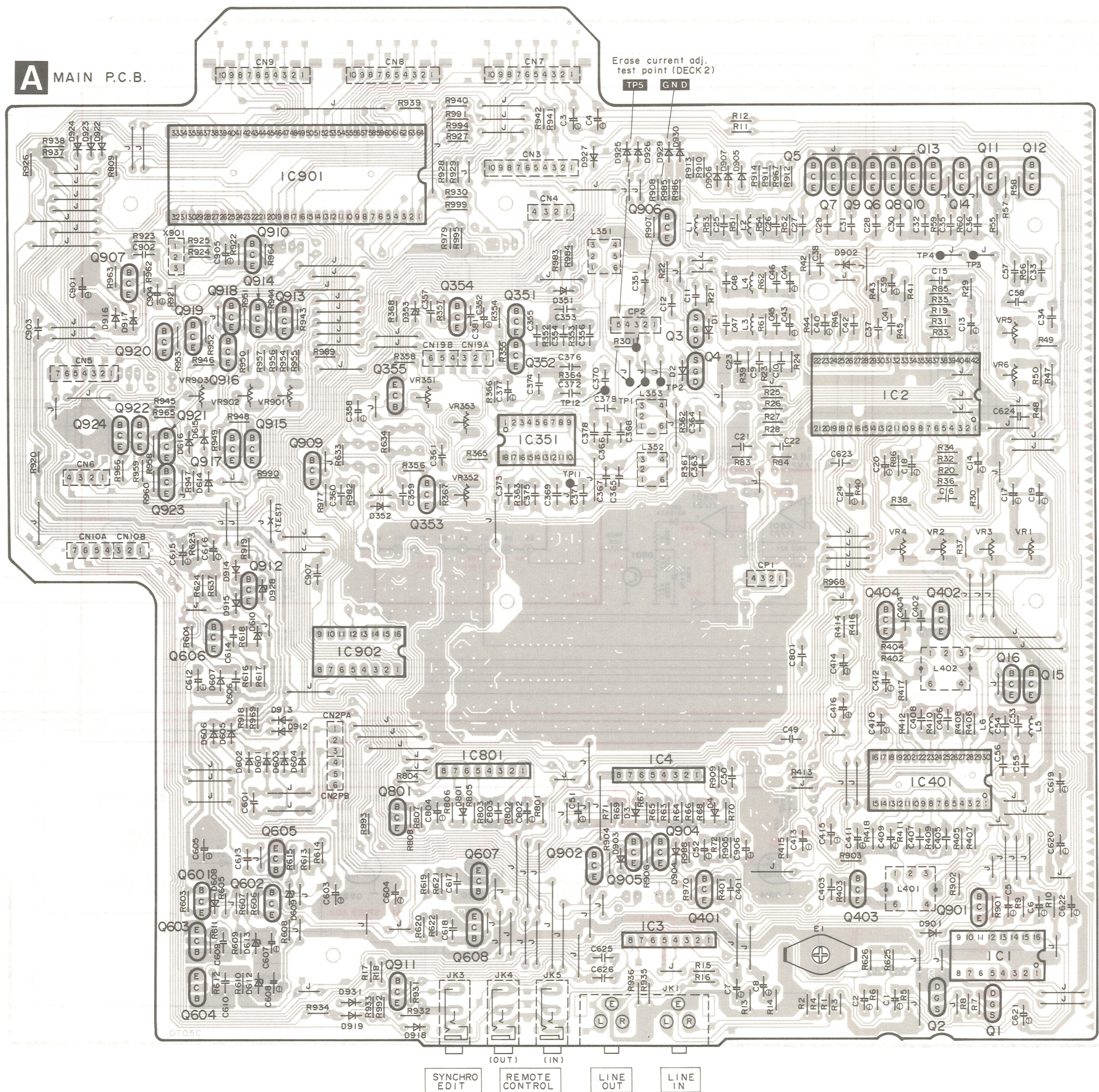


**F** FL METER P.C.B.

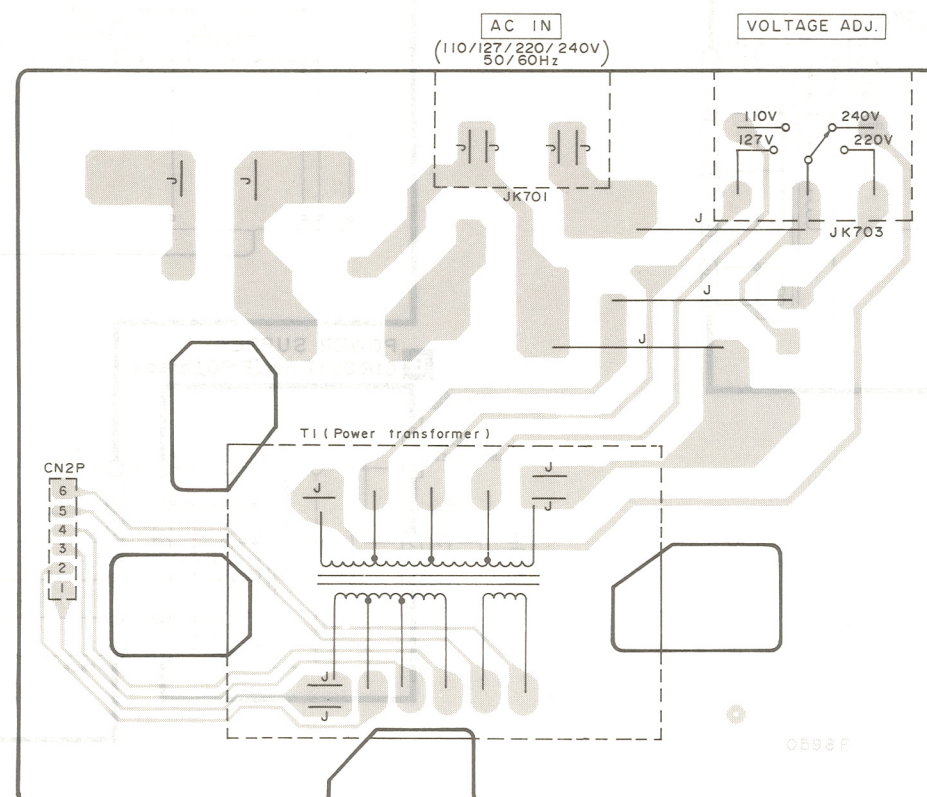
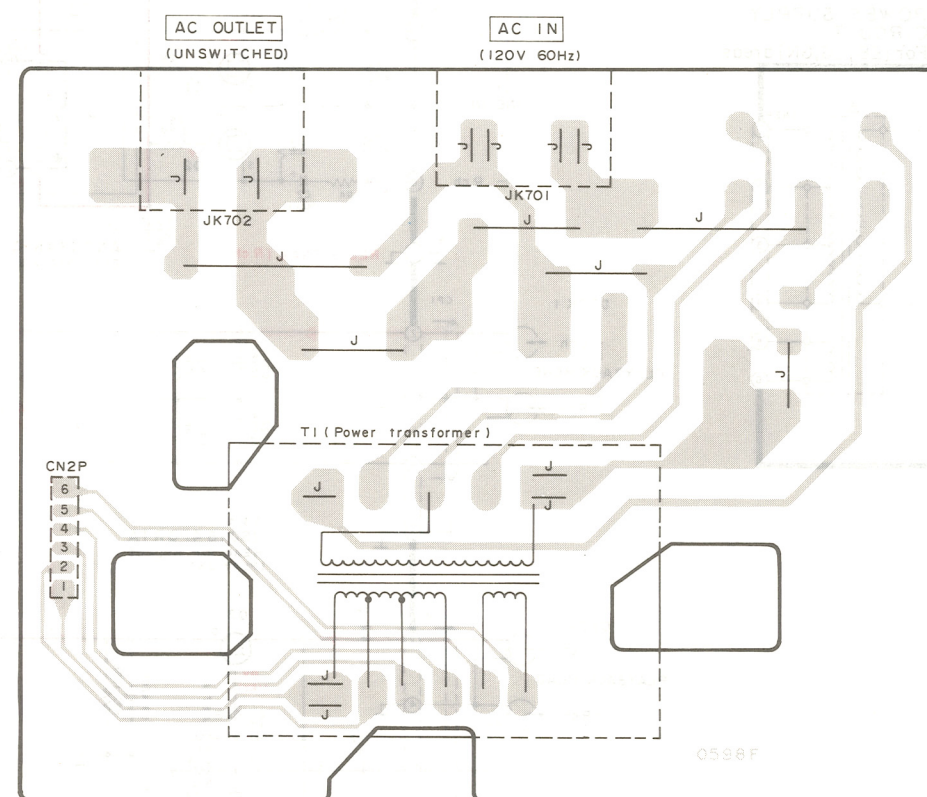
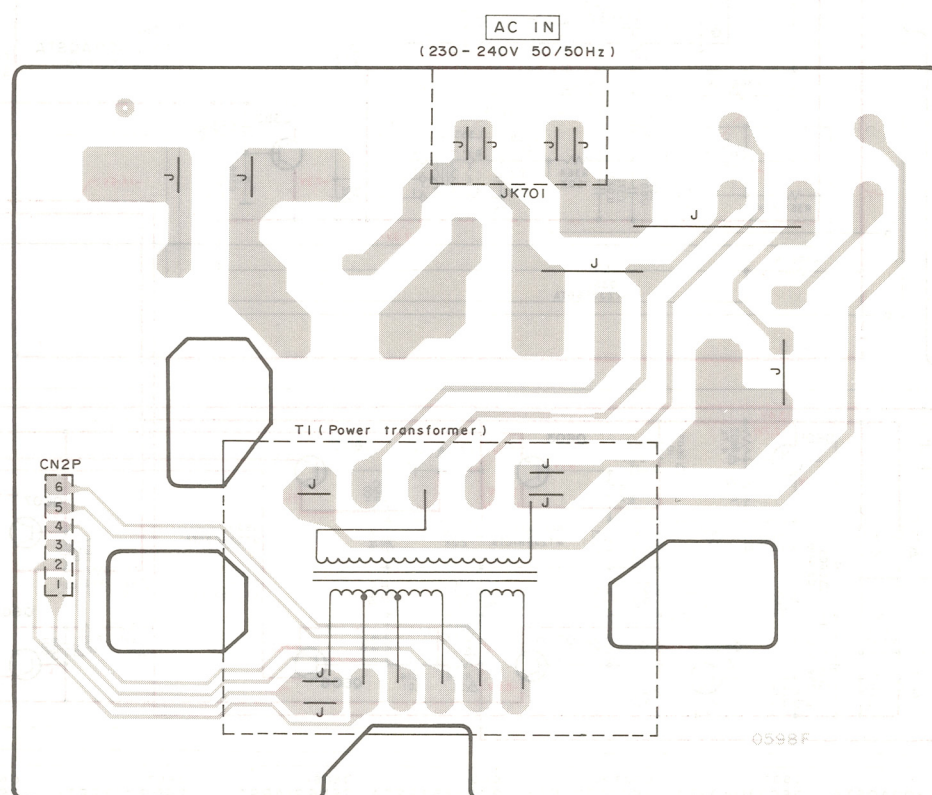
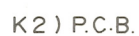




**A** MAIN P.C.B.



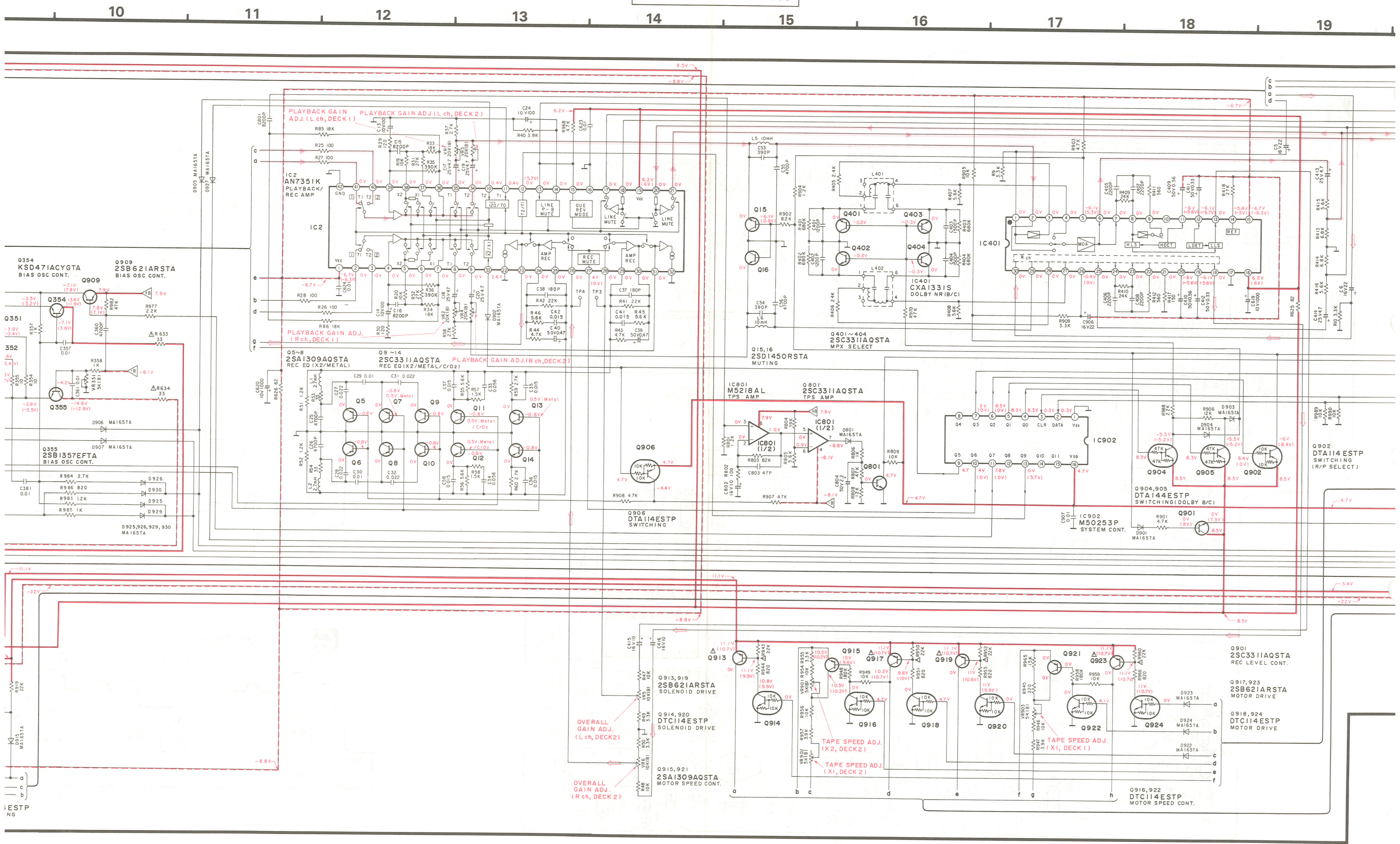




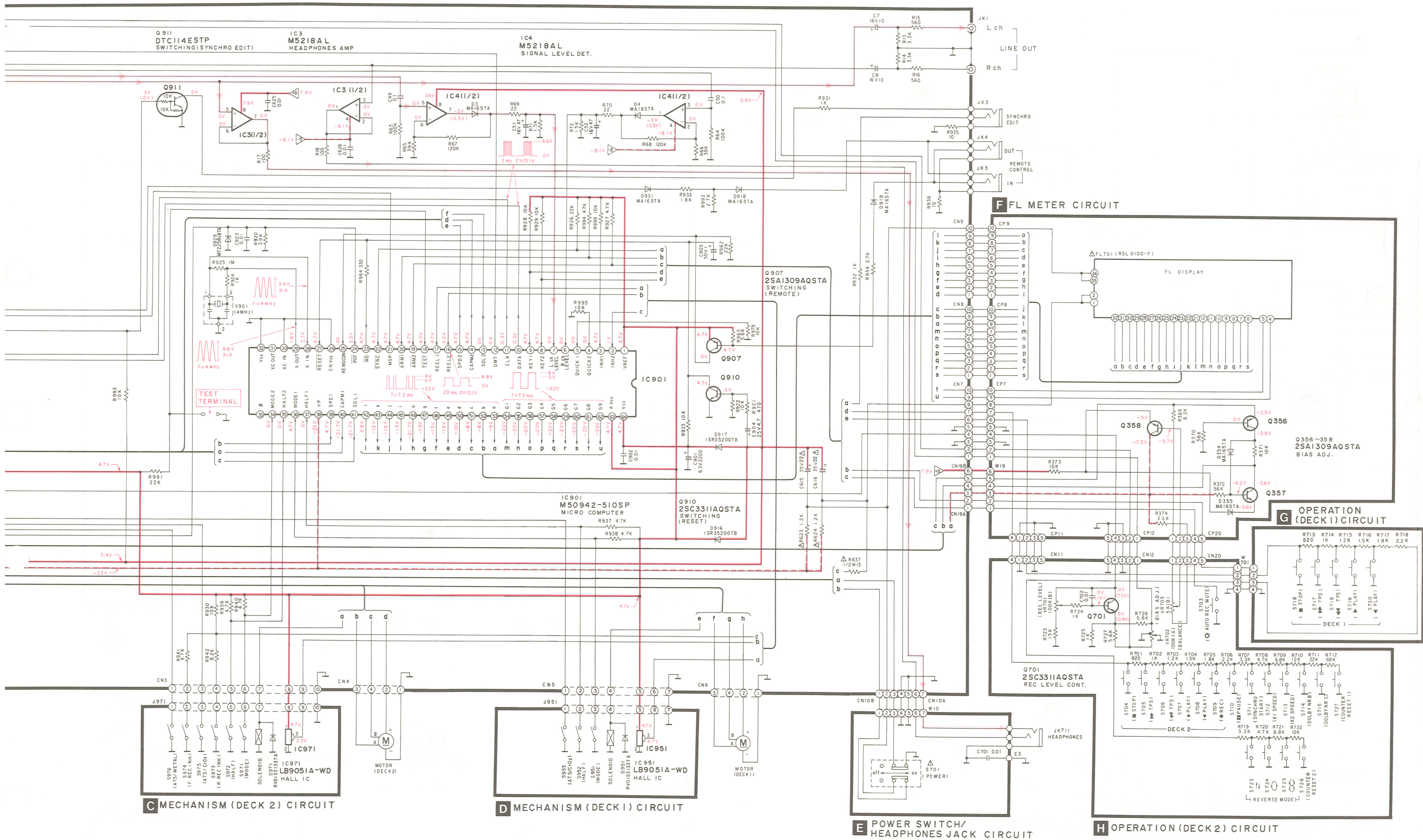














## SCHEMATIC DIAGRAM (Parts list on pages 41~44.)

(This schematic diagram may be modified at any time with the development of new technology.)

## Notes:

- JK703 : Voltage selector in "240V" position. (For [GC, PX] areas only.) (110V ↔ 127V ↔ 220V ↔ 240V)
- S701 : Power switch in "on" position (P, PC areas: POWER/ OFF ON, Others areas: POWER/ standby ON).
- S703 : DECK 2 Automatic-record-muting switch ( AUTO REC MUTE).
- S704 : DECK 2 Stop switch ( STOP).
- S705 : DECK 2 Fast-forward switch ( TPS).
- S706 : DECK 2 Rewind switch ( TPS).
- S707 : DECK 2 Forward-side playback switch ( PLAY).
- S708 : DECK 2 Reverse-side playback switch ( PLAY).
- S709 : DECK 2 Record switch ( REC).
- S710 : DECK 2 Pause switch ( PAUSE).
- S711 : Synchro-start switch (SYNCHRO START).
- S712 : Edit-recording tape-speed selector switch (X1 SPEED).
- S713 : Edit-recording tape-speed selector switch (X2 SPEED).
- S714 : Dolby noise-reduction selector switch (Dolby NR; ).
- S715 : Dolby noise-reduction selector switch (Dolby NR; ).
- S716 : DECK 1 Stop switch ( STOP).
- S717 : DECK 1 Fast-forward switch ( TPS).
- S718 : DECK 1 Rewind switch ( TPS).
- S719 : DECK 1 Forward-side playback switch ( PLAY).
- S720 : DECK 1 Reverse-side playback switch ( PLAY).
- S723 : Reverse-mode switch (REVERSE MODE; ).
- S724 : Reverse-mode switch (REVERSE MODE; ).
- S725 : Reverse-mode switch (REVERSE MODE; ).
- S726 : DECK 2 Tape counter reset 2 switch (COUNTER RESET 2).
- S727 : DECK 1 Tape counter reset 1 switch (COUNTER RESET 1).
- S951 : DECK 1 Mode switch "off" position.
- S952 : DECK 1 Cassette half detection switch in "off" position.
- S953 : DECK 1 ATS (CrO<sub>2</sub>) switch in "off" position.
- S971 : DECK 2 Mode switch in "off" position.
- S972 : DECK 2 Cassette half detection switch in "off" position.
- S973 : DECK 2 Reverse rec. inhibit switch in "off" position.
- S974 : DECK 2 Forward rec. inhibit switch in "off" position.
- S975 : DECK 2 ATS (CrO<sub>2</sub>) switch in "off" position.
- S976 : DECK 2 ATS (Metal) switch in "off" position.

Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.  
1K=1,000 (Ω), 1M=1,000K (Ω)

Capacity are in micro-farads (μF) unless specified otherwise.

• All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.

( ).....Voltage values at record mode.

For measurement us EVM.

• Important safety notice

Components identified by mark have special characteristics important for safety.

When replacing any of these components, use only manufacturer's specified parts.

• ( ) indicates +B (bias).

• ( ) indicates -B (bias).

• ( ) indicates the flow of the playback signal.

• ( ) indicates the flow of the record signal.

• The supply part number is described alone in the replacement parts list.

Ref. No.	Production Part No.	Supply Part No.
IC1	AN7384N-A	AN7384
IC3, 4, 801	M5218AL	M5218L

## \*Caution!

IC and LSI are sensitive to static electricity.

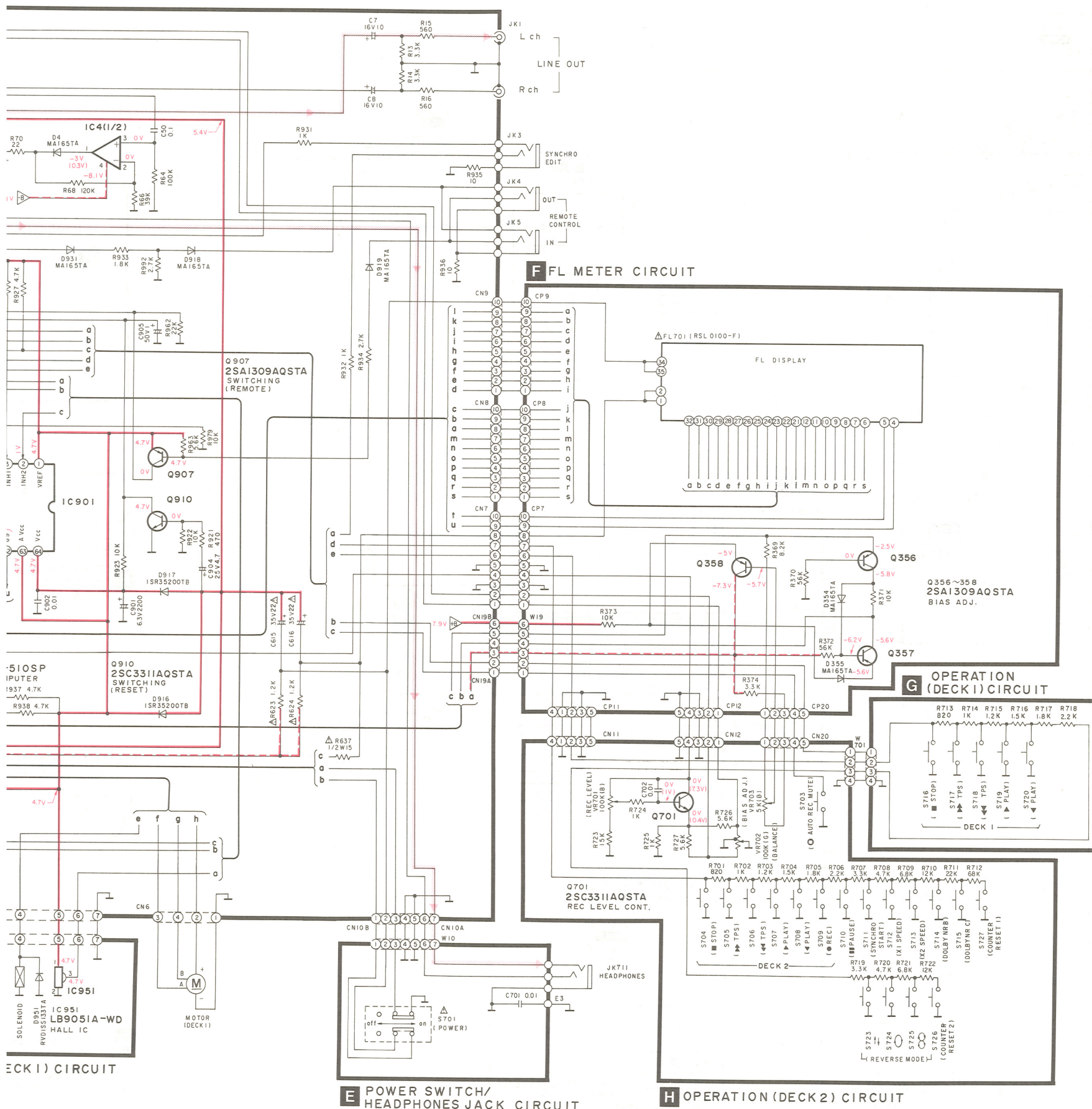
Secondary trouble can be prevented by taking care during repair.

\*Cover the parts boxes made of plastics with aluminum foil.

\*Ground the soldering iron.

\*Put a conductive mat on the work table.

\*Do not touch the legs of IC or LSI with the fingers directly.



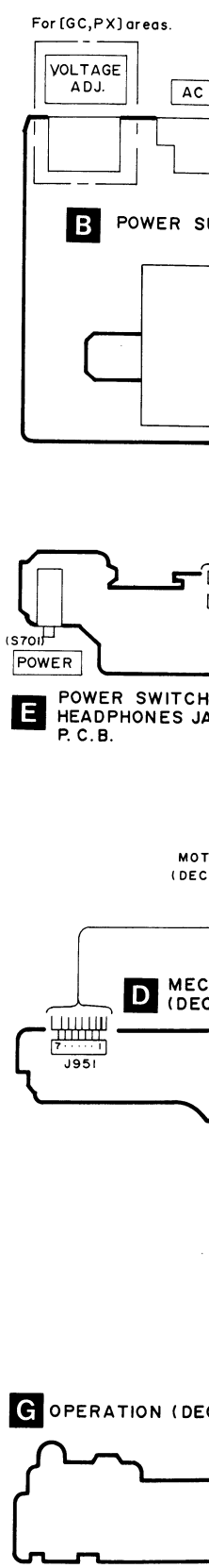
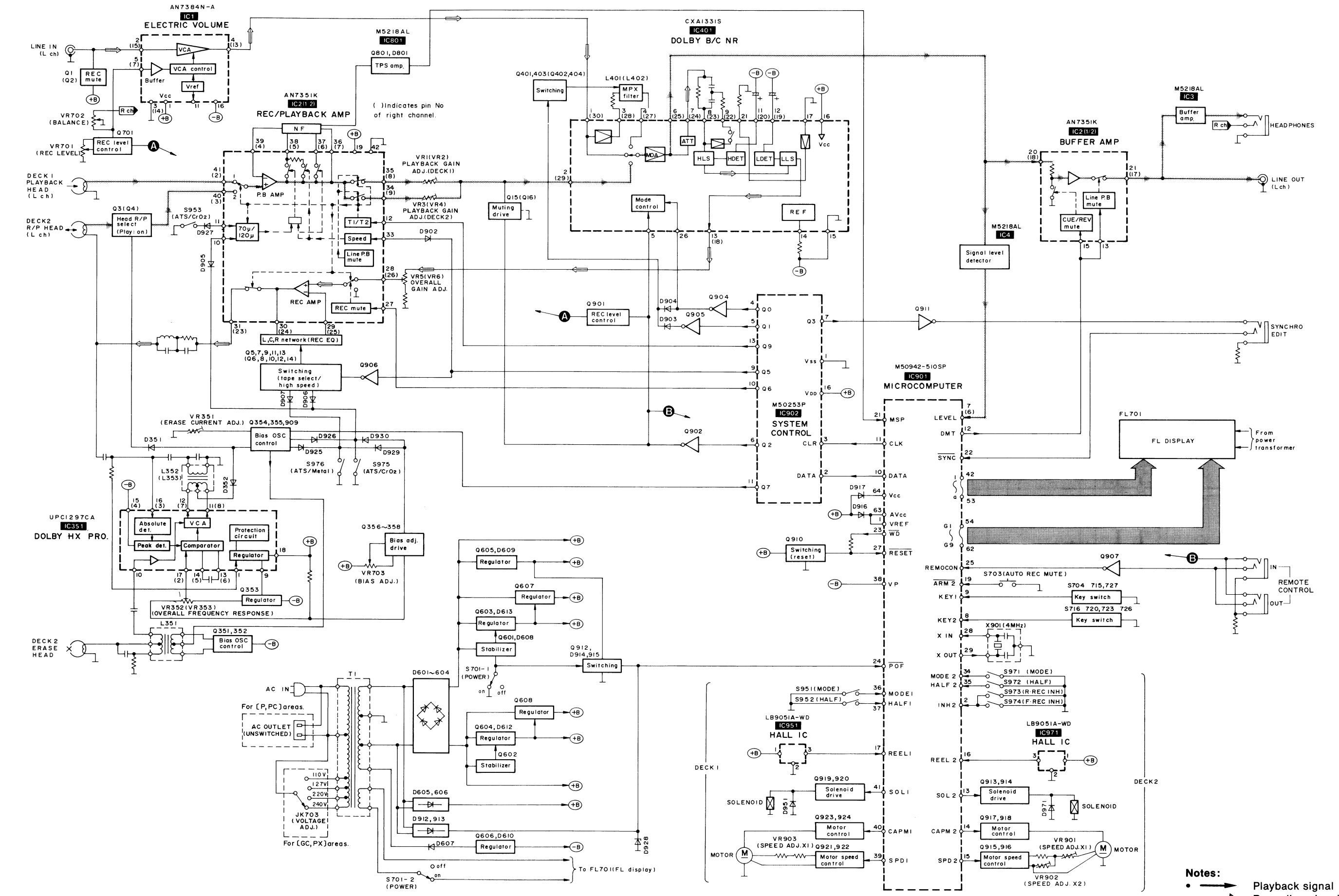
ECK11 CIRCUIT

E POWER SWITCH/  
HEADPHONES JACK CIRCUIT

H OPERATION (DECK 2) CIRCUIT

BLOCK DIAGRAM

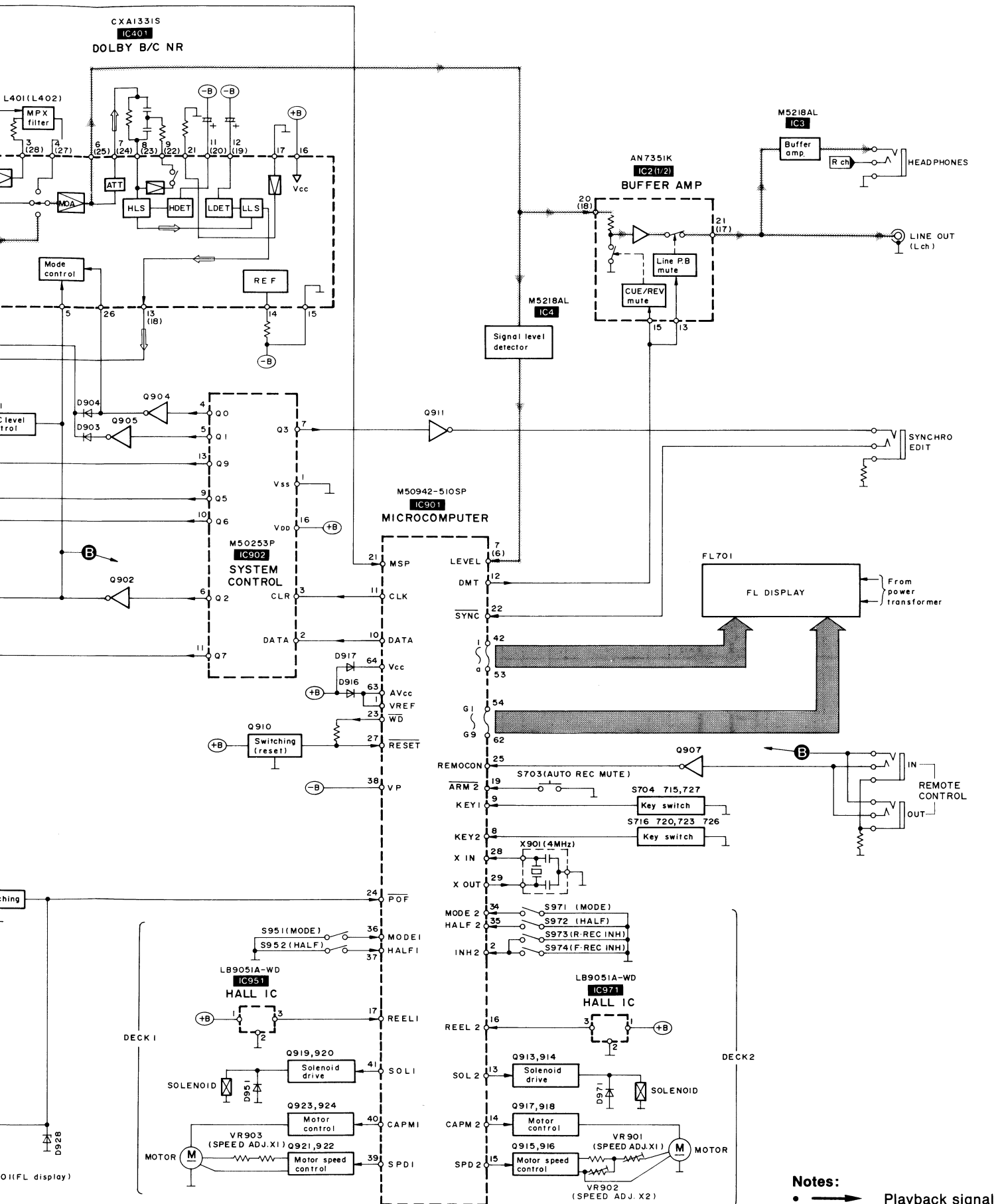
WIRING CO



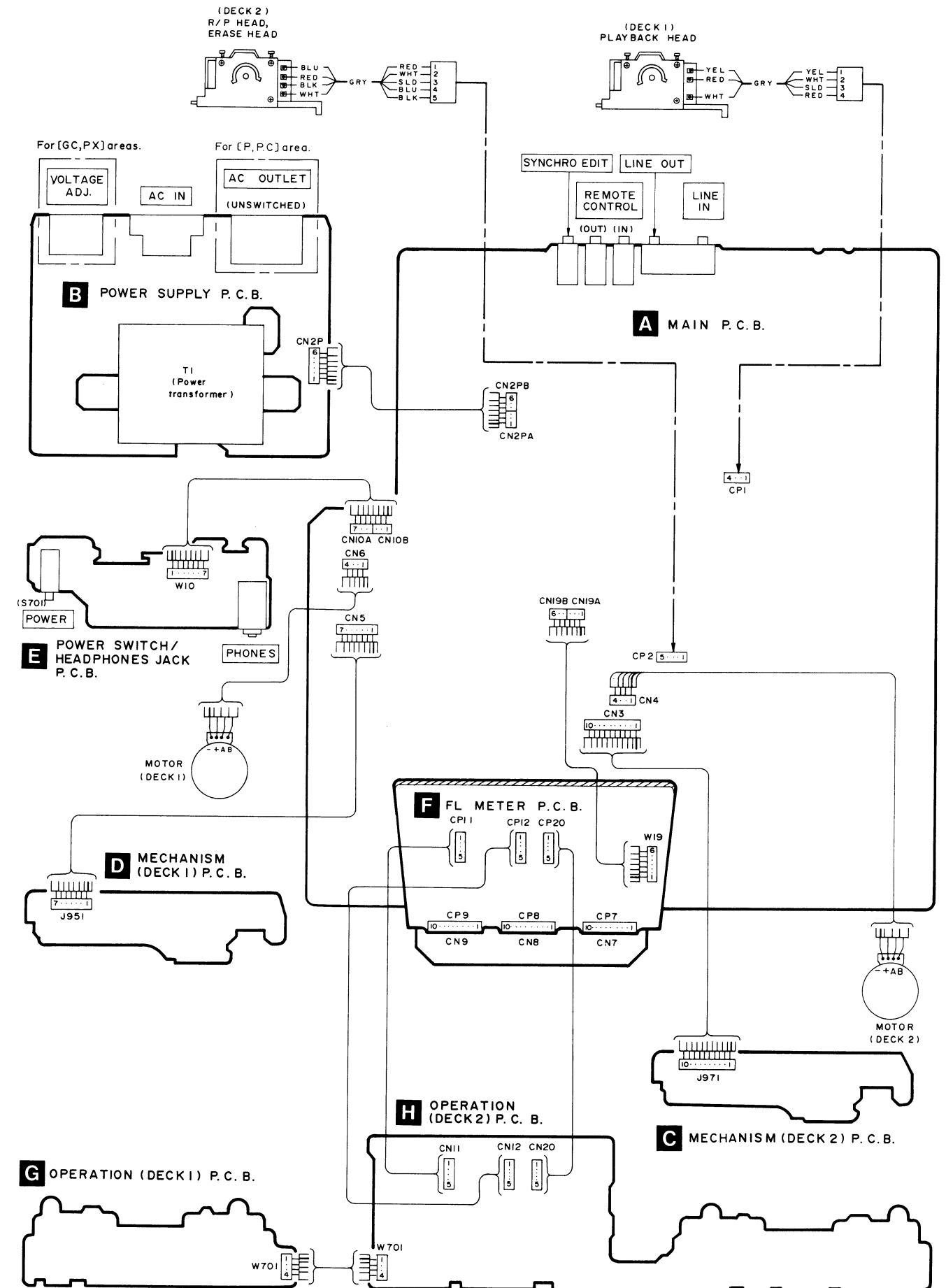
Notes:  
• Playback signal  
• Recording signal



# ■ WIRING CONNECTION DIAGRAM



Notes:  
 • → Playback signal  
 • → Recording signal





## ■ TERMINAL FUNCTION OF IC

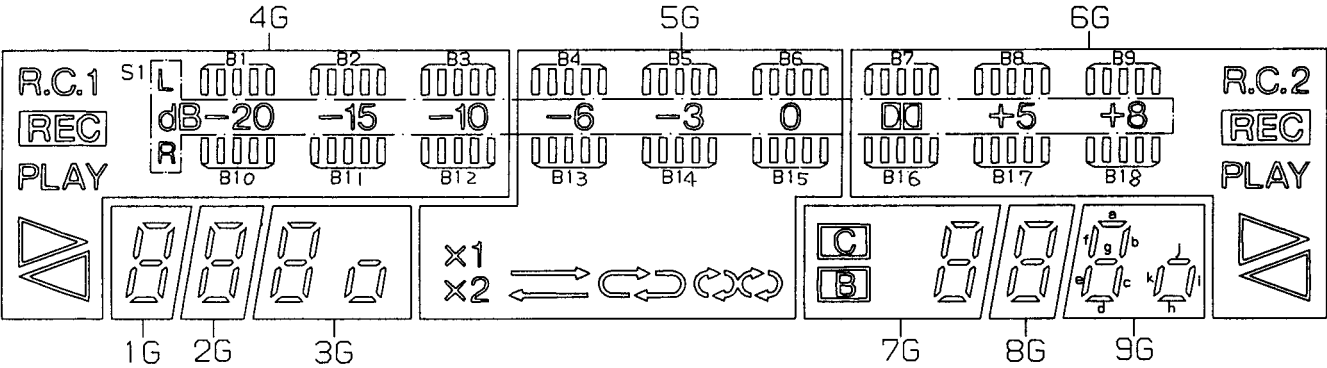
### • IC901 (M50942-510SP): MICROCOMPUTER

Pin No.	Mark	I/O	Description
1	V <sub>REF</sub>	I	Standard voltage terminal (5V)
2	INH 2	I	Deck 2 Forward/Reverse Rec. Inh. switch select terminal
3	INH 1	I	Deck 1 Forward/Reverse Rec. Inh. switch select terminal
4	QUI 2	I	Deck 2 leader tape det. for quick reverse
5	QUI 1		Deck 1 leader tape det. for quick reverse
6	R IN	I	Rch indication level
7	L IN		Lch indication level
8	KEY 2	I	Key switch scan (DECK 1: STOP, TPS (F.F., REW.) F. PLAY, R. PLAY, C-RES 2, REVERSE MODE)
9	KEY 1	I	Key switch scan (DECK 2: STOP, TPS (F.F., REW.) F. PLAY, R. PLAY, REC., PAUSE, S. START, ×1, ×2, DOLBY B, C, C-RES 1)
10	DATA	O	Amp control output serial data (B, C, ENC, X2, T2P, REN RMT 2, REC 2)
11	CLK	O	Serial data clock output
12	DMT	O	Line out mute output Mute ON: "H", Mute OFF: "L"
13	SOL 2	O	Deck 2 Plunger ON/OFF control ON: "H", OFF: "L"
14	CAPM 2	O	Deck 2 motor ON/OFF control ON: "H", OFF: "L"
15	SPD 2	O	Deck 2 Motor speed X1: "H", X2: "L"
16	REEL 2	I	Deck 2 Rotation det.
17	REEL 1	I	Deck 1 Rotation det.
18	TEST	I	Adjustment mode det. Normal: "H", Test: "L"
19	ARM 2	I	Deck 2 Auto Rec Mute Key Key ON: "L", Key OFF: "H"
20	ARM 1	I	Deck 1 Auto Rec Mute Key
21	MSP	I	TPS det. signal ON: "L", Signal OFF: "H"
22	SYNC	I	Synchro start signal start: "L", Stop: "H"
23	WD	O	Runaway det. Normal: "H" Runaway: "L"
24	POF	I	Power off det. OFF: "L"
25	REMOCON	I	Remote control signal

Pin No.	Mark	I/O	Description
26	CN V <sub>SS</sub>	I	Connected to V <sub>SS</sub> .
27	RESET	I	Reset input terminal Normal: "H", Reset: "L"
28	X IN	I	Clock OSC terminal (4MHz)
29	X OUT	O	
30	XC IN	I	Not used
31	XC OUT	O	Not used
32	V <sub>SS</sub>	I	Connected to GND
33	Ø	O	Not used
34	MODE 2	I	Deck 2 mechanism mode switch select terminal PLAY, TPS (F.F., REW.): "L", Stop: "H"
35	HALF 2	I	Deck 2 cassette half detection switch ON: "L", OFF: "H"
36	MODE 1	I	Deck 1 mechanism mode switch select terminal PLAY, TPS (FF., REW.): "L", STOP: "H"
37	HALF 1	I	Deck 1 cassette half detection switch
38	VP	I	Standard voltage terminal
39	SPD 1	O	Deck 1 motor speed select terminal X1: "H", X2: "L"
40	CAPM 1	O	Deck 1 motor ON/OFF control terminal ON: "H", OFF: "L"
41	SOL 1	O	Deck 1 plunger ON/OFF control ON: "H", OFF: "L"
42 53	1 a	O	FL meter segment ON: "H", OFF: "L"
54 62	G1 G9	O	FL meter grid ON: "H", OFF: "L"
63	AVcc	I	Power supply terminal (A/D)
64	Vcc	I	Power supply terminal

INTERNAL CONNECTION OF FL

• Grid connection diagram



• Anode connection table

	1G	2G	3G	4G	5G	6G	7G	8G	9G
P1	a	a	a	B1	B4	B7	a	a	a
P2	b	b	b	B2	B5	B8	b	b	b
P3	c	c	c	B3	B6	B9	c	c	c
P4	d	d	d	B10	B13	B16	d	d	d
P5	e	e	e	B11	B14	B17	e	e	e
P6	f	f	f	B12	B15	B18	f	f	f
P7	g	g	g	R.C.1	x1	R.C.2	g	g	g
P8	-	-	h	REC	x2	REC	C	-	h
P9	-	-	i	PLAY	→	PLAY	B	-	i
P10	-	-	j	▷	↺	▷	-	-	j
P11	-	-	k	◁	↻	◁	-	-	k
P12	-	-	-	S1	S1	S1	-	-	-

• Pin connection

PIN NO.	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F 2	F 2	N P	P 12	P 11	P 10	P 9	P 8	P 7	P 6	P 5	P 4	P 3	P 2	P 1	N C	N C	N C	N C	N C	N C	N C	N C	1 G	2 G	3 G	4 G	5 G	6 G	7 G	8 G	9 G	N P	F 1	F 1

- Note
- 1) F1, F2 .....Filament

2) NP .....No pin

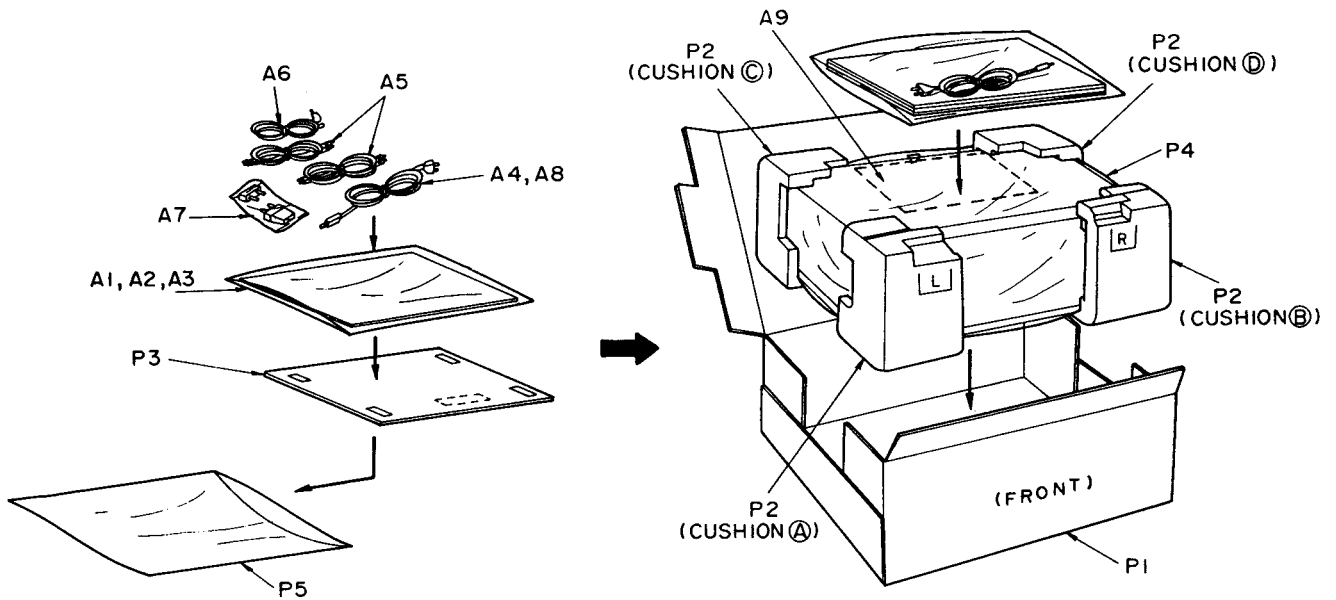
3) NC.....No connection

4) 1G~9G .....Grid

# ■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

<p>AN7384N-A</p>	<p>UPC1297CA</p>	<p>CXA1331S</p>	<p>M50253P</p>	<p>AN7351K</p>	<p>M50942-510SP</p>
<p>M5218AL</p>	<p>LB9051A-WD</p>	<p>2SB621ARSTA KSD471ACYGTA</p>	<p>DTA114ESTP DTA144ESTP DTC114ESTP</p>		<p>2SA1309AQSTA 2SC3311AQSTA 2SD1450RSTA</p>
<p>2SB1357EFTA 2SD2037EFTA</p>	<p>2SJ164PQRTA</p>	<p>MTZJ22DTA</p>	<p>MTZJ5R1BTA MTZJ5R6BTA MTZJ6R2BTA MTZJ9R1CTA</p>		<p>MA165TA MA167TA 1SR35200TB RVD1SS133TA</p>

# ■ PACKING



<CUSHION A, B, C, D Part No.: RPN0296>

# REPLACEMENT PARTS LIST

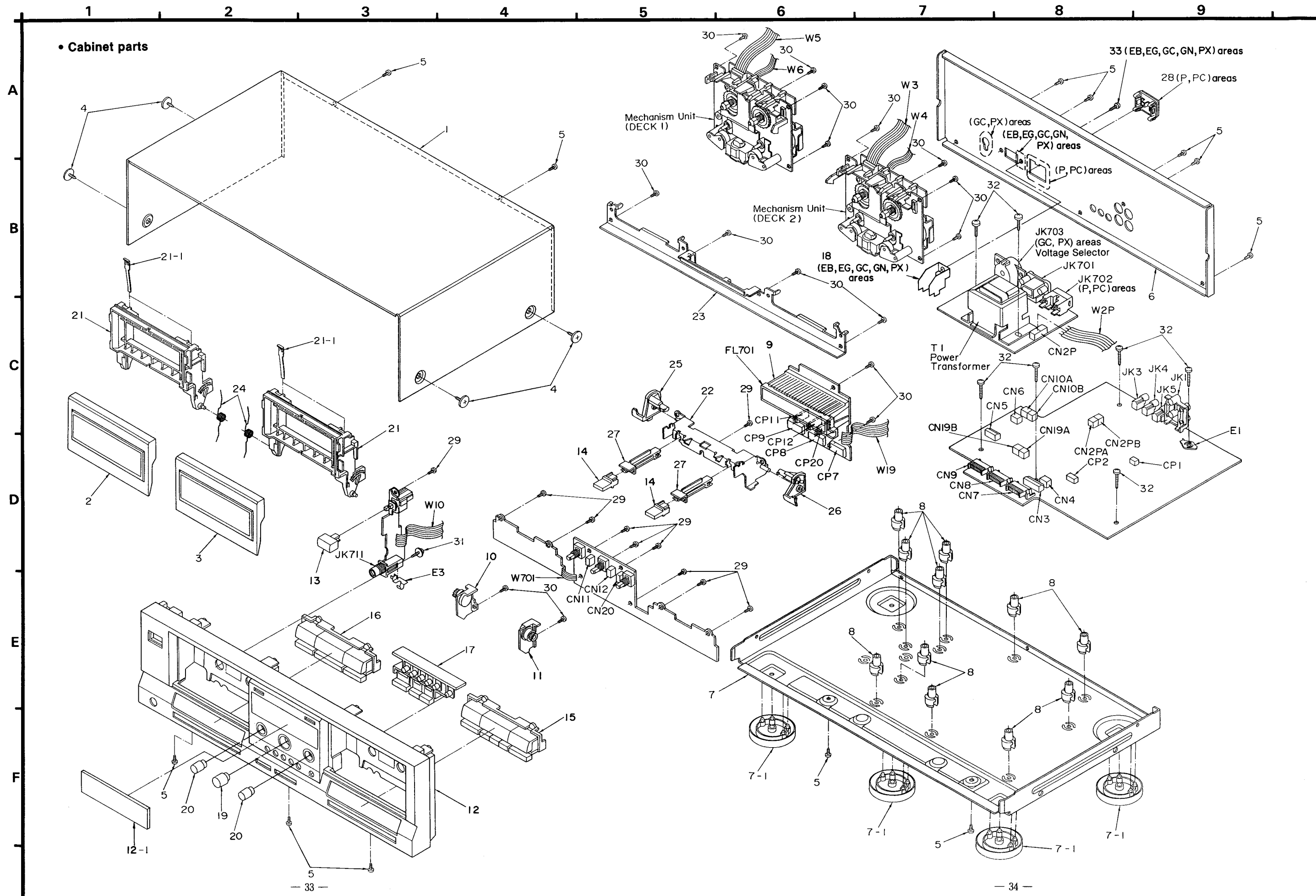
**Notes : \* Important safety notice:**

Components identified by  $\triangle$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

- \* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)  
Parts without these indications can be used for all areas.

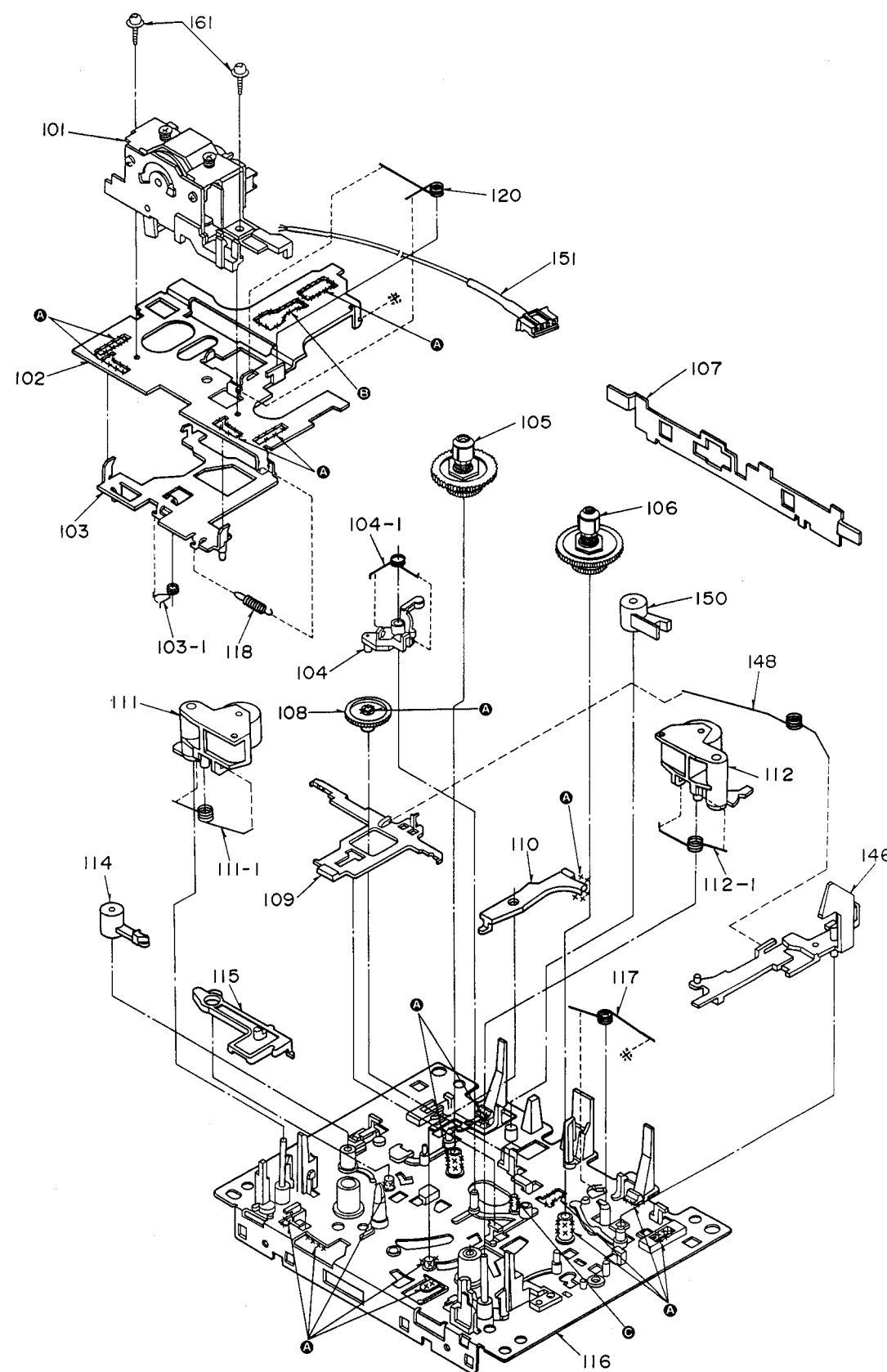
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		P1	RPG1133	CARTON BOX	(P, PX)
				P1	RPG1134	CARTON BOX	(PC)
				P1	RPG1135	CARTON BOX	(EB, EG, GC, GN)
1	RKM0016-K1	CABINET		P2	RPN0296	CUSHION	
2	RYF0119K-K	CASSETTE LID(DECK1)		P3	RPQ0164	ACCESSORIES PAD	
3	RYF0119L-K	CASSETTE LID(DECK2)		P4	XZB50X65A02Z	PROTECTION COVER(THIS UNIT)	
4	SNE2129-1	SCREW		P5	XZB24X34C04	PROTECTION BAG(F. B., ACC.)	
5	XTBS3+8JFZ1	SCREW					
6	RGR0112A-G1	REAR PANEL	(P, PC)			ACCESSORIES	
6	RGR0112E-C	REAR PANEL	(EG)				
6	RGR0112E-D	REAR PANEL	(EB, GN)	A1	RFKSSTR333EG	INSTRUCTION MANUAL ASS'Y	(EG)
6	RGR0112F-B	REAR PANEL	(GC)	A1	RFKSSTR333PC	INSTRUCTION MANUAL ASS'Y	(PC)
6	RGR0112F-C	REAR PANEL	(PX)	A1	RQT1370-P	INSTRUCTION MANUAL	(P)
7	RFKJSTR313PK	BOTTOM CHASSIS ASS'Y		A1	RQT1372-G	INSTRUCTION MANUAL	(GC)
7-1	RKA0009-1	FOOT		A1	RQT1374-B	INSTRUCTION MANUAL	(EB, GN)
8	RKQ0089	P. C. B. HOLDER		A1	RQT1377-M	INSTRUCTION MANUAL	(PX)
9	RMN0137	FL HOLDER		A2	RQA0013	WARRANTY CARD	(EB, EG)
10	RFKNSDN7AK	DAMPER GEAR ASS'Y(L)		A2	RQX7433ZA	WARRANTY CARD	(GN)
11	RFKNSDN7BK	DAMPER GEAR ASS'Y(R)		A2	SQX7071-1	WARRANTY CARD	(PX)
12	RFKGSSTR333EB	FRONT PANEL ASS'Y	(EB, EG, GC, GN, PX)	A2	SQX7179	WARRANTY CARD	(P)
12	RFKGSSTR333P	FRONT PANEL ASS'Y	(P, PC)	A2	SQX7183	WARRANTY CARD	(PC)
12-1	RKW0139A-K1	TRANSPARENT PLATE		A3	RQCB0169	SERVICENTER LIST	(EB, EG, GC, GN)
13	RGU0030	BUTTON, POWER		A3	SQX9129-1	SERVICENTER LIST	(P)
14	RGU0070	BUTTON, EJECT		A3	SQX9131	SERVICENTER LIST	(PC)
15	RGU0519A-K	BUTTON, OPERATION(DECK2)		A4	RJA0004	AC POWER SUPPLY CORD	(GC, PX) $\triangle$
16	RGU0520A-K	BUTTON, OPERATION(DECK1)		A4	RJA0019-1K	AC POWER SUPPLY CORD	(EG) $\triangle$
17	RGU0522A-K	BUTTON, SYNCHRO		A4	SJA172	AC POWER SUPPLY CORD	(PC) $\triangle$
18	RMA0582	BRACKET, P. TRANSFORMER	(EB, EG, GC, GN, PX)	A4	SJA173	AC POWER SUPPLY CORD	(GN) $\triangle$
19	RGW0109-K	KNOB, REC LEVEL		A4	SJA175-1	AC POWER SUPPLY CORD	(P) $\triangle$
20	RGW0110-K	KNOB, BALANCE/BIAS ADJ.		A4	SJA193	AC POWER SUPPLY CORD	(EB) $\triangle$
21	RKF0169A-K	CASSETTE HOLDER		A5	SJP2249-3	STEREO CONNECTION CABLE	
21-1	QBP2006A	TAPE PRESSURE SPRING		A6	SJP2257T	STEREO MINI CABLE	
22	RMA0406	EJECT ANGLE		A7	SJP9215	POWER PLUG ADAPTOR	(GC, PX) $\triangle$
23	RMA0407	MECHANISM ANGLE		A8	RQLA0134	CAUTION LABEL(VOL. SELECTOR)	(GC, PX)
24	RME0068-1	SPRING		A9	RQLA0053	CAUTION LABEL	(PX)
25	RML0185-1	EJECT LEVER(L)					
26	RML0186-1	EJECT LEVER(R)					
27	RMM0014	EJECT ROD					
28	SJS9331A	AC OUTLET COVER	(P, PC)				
29	XTBS26+8J	SCREW					
30	XTB3+10JFZ	SCREW					
31	XTWS3+10Q	SCREW					
32	XTB3+20JFZ	SCREW					
33	XTBS3+8JFZ1	SCREW	(EB, EG, GC, GN, PX)				
		PACKING MATERIAL					

# EXPLODED VIEWS

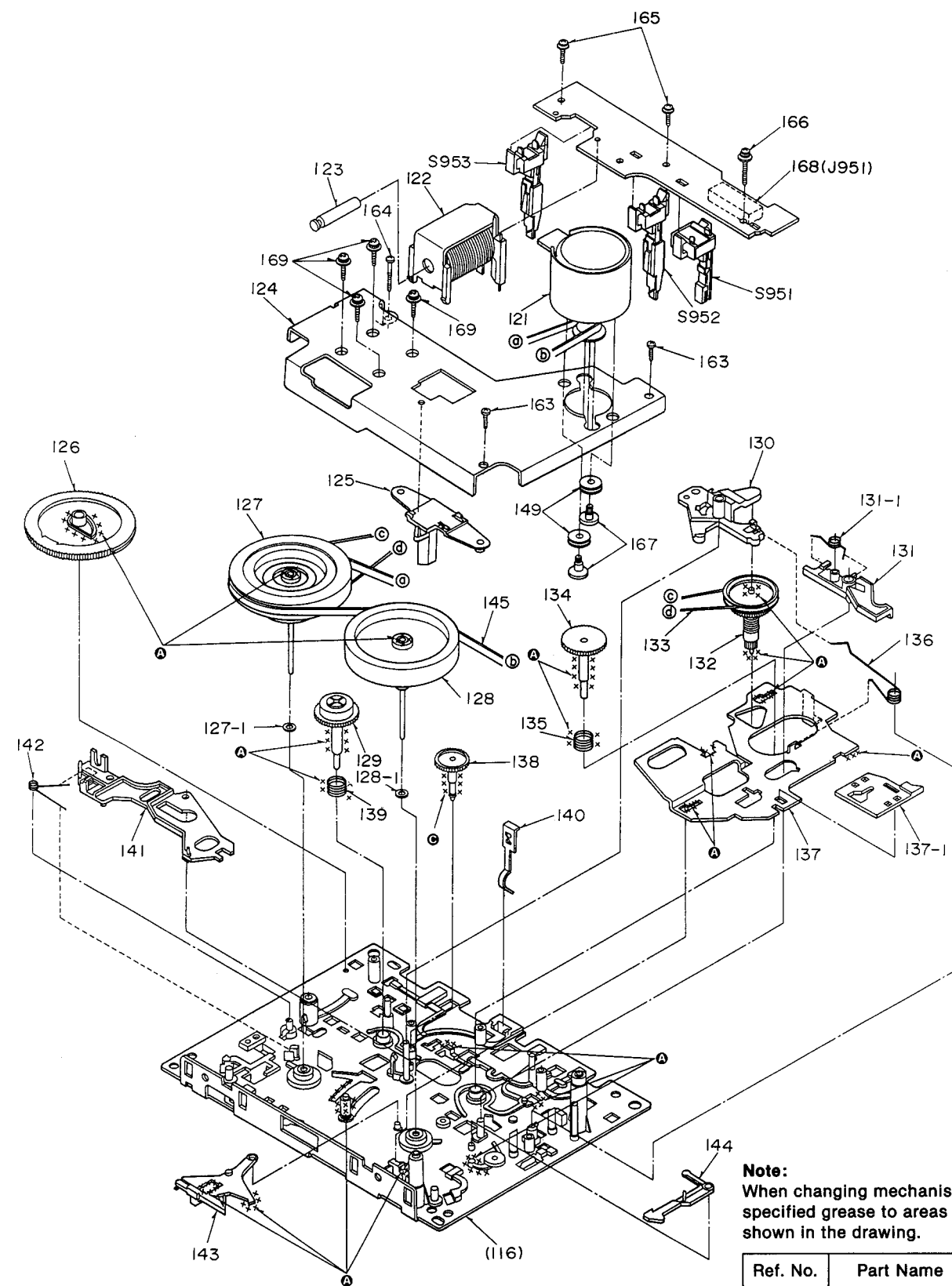


- Mechanical parts
- DECK 1

(Top view)



(Bottom view)



**Note:**  
When changing mechanism parts, apply the specified grease to areas marked "x" as shown in the drawing.

Ref. No.	Part Name	Part No.
A	FLOIL AK-152	SZZ0L18
C	FLOIL947P	RZZ0L02



# REPLACEMENT PARTS LIST

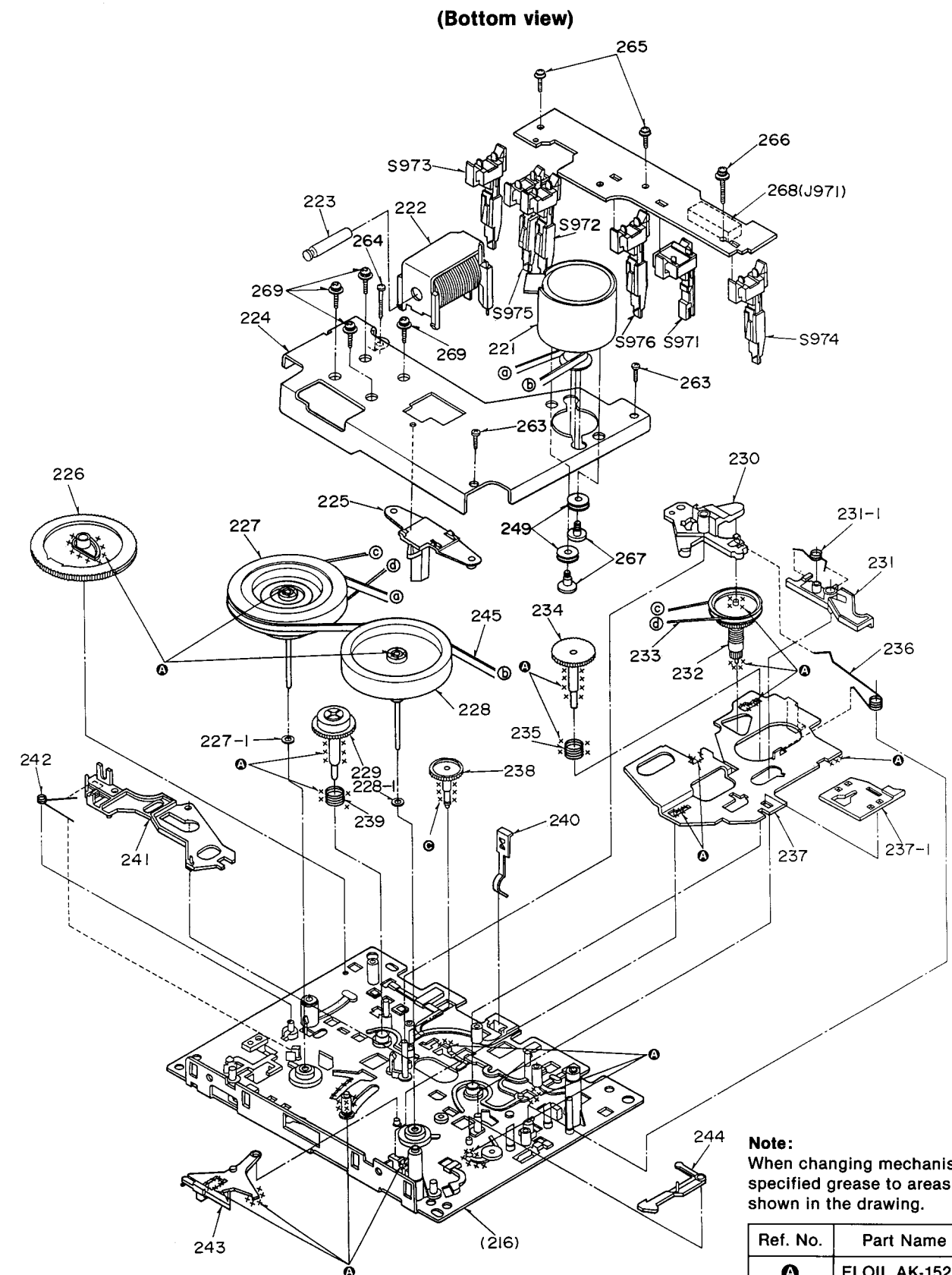
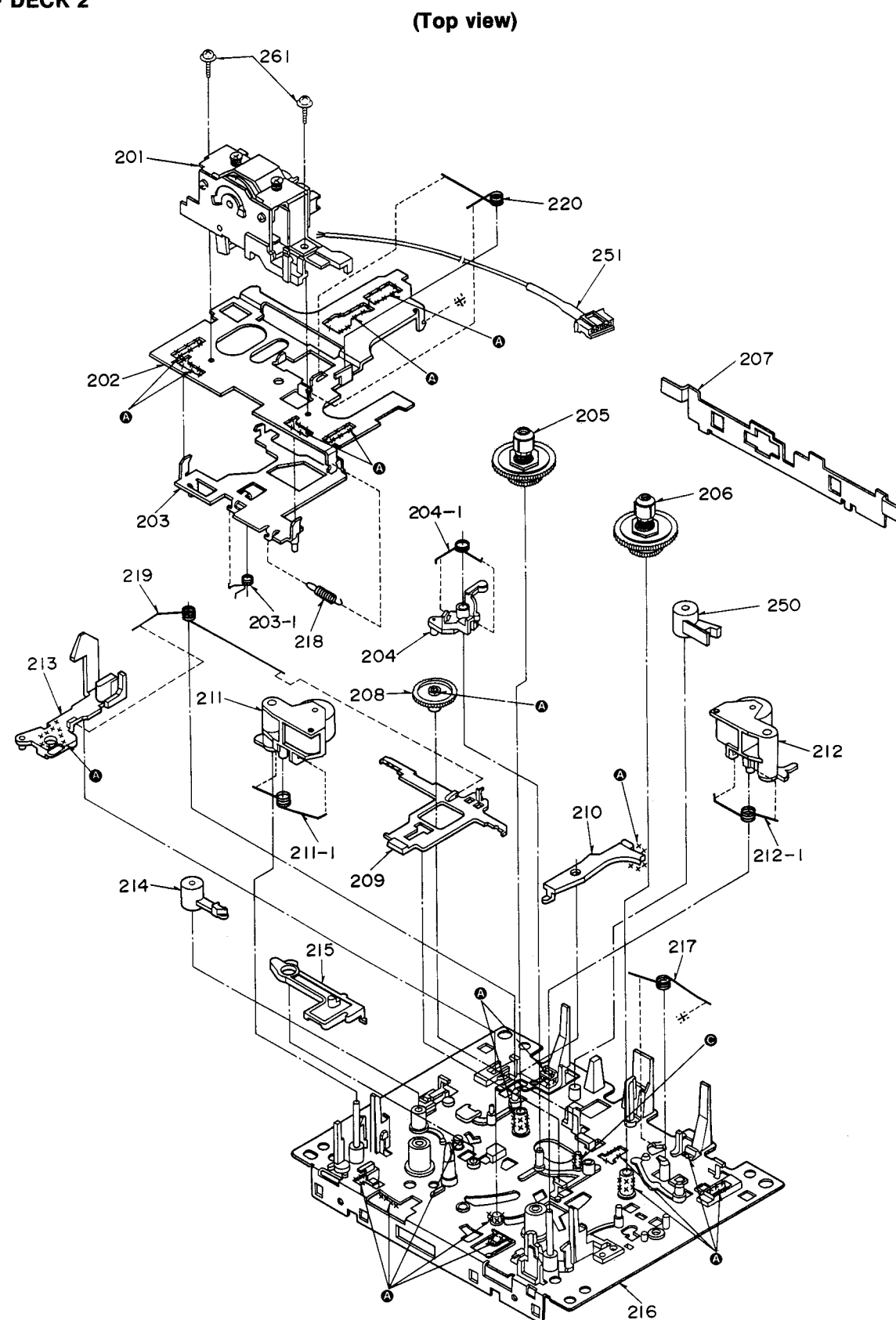
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST		143	RUB515ZA	LEVER	
				144	RUB509ZA	LEVER	
				145	RDV0015	CAPSTAN BELT	
DECK1				146	RUB507ZD	EJECT ROD(R)	
101	RXQ0021	HEAD BLOCK(PLAYBACK)		148	RJW144ZA	SPRING	
102	RJA793ZF	HEAD BASE		149	RHG3032ZA	RUBBER CUSHION	
103	RZLAR300A	ROD		150	RNL180ZB	DAMPER ARM	
103-1	RJW143ZA	SPRING		151	REX0061	LEAD WIRE BLOCK(4P)	
104	1UB0089ZA	ARM		161	XTW2+6L	SCREW	
104-1	RJW148ZA	SPRING		163	XTN26+7J	SCREW	
105	1DM0018ZB	REEL TABLE(R)		164	RHE5203ZA	SCREW	
106	1DM0017ZB	REEL TABLE(F)		165	XTW2+8S	SCREW	
107	RML0069-1	LEVER		166	XYC2+JF16	SCREW	
108	RDG5772ZC	GEAR		167	RHD26002	SCREW	
109	RUB508ZB	BRAKE ROD		168	RJS7T7ZA	CONNECTOR(7P), J951	
110	RUB506ZB	LEVER		169	RHD26003	SCREW	
111	1UB0088ZB	ARM(R)					
111-1	RJW141ZA	SPRING					
112	1UB0087ZB	ARM(F)					
112-1	RJW140ZC	SPRING					
114	RNL1ZD	DAMPER ARM					
115	RUB503ZD	MAIN LEVER					
116	RZUSX980	CHASSIS					
117	RJW142ZA	SPRING					
118	RUD105ZA	SPRING					
120	RJW139ZA	SPRING					
121	RFM133ZA	DC MOTOR					
122	1UE0015ZB	PLUNGER					
123	RUB428ZE	MOVING IRON CORE					
124	RUL1030XB	ANGLE					
125	RMD5014ZC	ANGLE					
126	RDG5927ZG	GEAR					
127	1DW0053ZB	FLYWHEEL(F)					
127-1	RNW139ZA	WASHER					
128	1DW0054ZB	FLYWHEEL(R)					
128-1	RNW138ZA	WASHER					
129	1DG0006ZB	REEL TABLE GEAR					
130	RUB513ZD	ARM					
131	1UB0091ZA	LEVER					
131-1	RJW146ZA	SPRING					
132	1DR0011ZB	MAIN PULLEY					
133	RDV90ZB	BELT					
134	RDG5769ZA	REEL TABLE GEAR					
135	RJQ111ZB	SPRING					
136	RJW145ZA	SPRING					
137	1UB0090ZA	ROD					
137-1	RUB512ZB	ROD					
138	RDG5773ZB	GEAR					
139	RJQ112ZA	SPRING					
140	RUS609ZC	TAPE PRESSURE SPRING					
141	RUB514ZC	LEVER					
142	RJW147ZA	SPRING					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST		241	RUB514ZC	LEVER	
				242	RUW147ZA	SPRING	
				243	RUB515ZA	LEVER	
DECK2				244	RUB509ZA	LEVER	
201	RXQ0019	HEAD BLOCK(REC. /PLAYBACK)		245	RDV0015	CAPSTAN BELT	
202	RJA793ZF	HEAD BASE		249	RHG3032ZA	RUBBER CUSHION	
203	RZLAR300A	ROD		250	RNL180ZB	DAMPER ARM	
203-1	RUW143ZA	SPRING		251	REX0059	LEAD WIRE BLOCK(5P)	
204	1UB0089ZA	ARM		261	XTW2+6L	SCREW	
204-1	RUW148ZA	SPRING		263	XTN26+7J	SCREW	
205	1DM0018ZB	REEL TABLE (R)		264	RHE5203ZA	SCREW	
206	1DM0017ZB	REEL TABLE (F)		265	XTW2+8S	SCREW	
207	RML0069-1	LEVER		266	XYC2+JF16	SCREW	
208	RDG5772ZC	GEAR		267	RHD26002	SCREW	
209	RUB508ZB	BRAKE ROD		268	RJS1077ZA	CONNECTOR(10P), J971	
210	RUB506ZB	LEVER		269	RHD26003	SCREW	
211	1UB0088ZB	ARM(R)					
211-1	RUW141ZA	SPRING					
212	1UB0087ZB	ARM(F)					
212-1	RUW140ZC	SPRING					
213	RUB541ZB	EJECT ROD(L)					
214	RNL12D	DAMPER ARM					
215	RUB503ZD	MAIN LEVER					
216	RZUSX980	CHASSIS					
217	RUW142ZA	SPRING					
218	RUD105ZA	SPRING					
219	RUW167ZA	SPRING					
220	RUW139ZA	SPRING					
221	RFM133ZA	DC MOTOR					
222	1UE0015ZB	PLUNGER					
223	RUB428ZE	MOVING IRON CORE					
224	RUL1030XB	ANGLE					
225	RMD5014ZC	ANGLE					
226	RDG5927ZG	GEAR					
227	1DW0053ZB	FLYWHEEL (F)					
227-1	RNW139ZA	WASHER					
228	1DW0054ZB	FLYWHEEL (R)					
228-1	RNW138ZA	WASHER					
229	1DG0006ZB	REEL TABLE GEAR					
230	RUB513ZD	ARM					
231	1UB0091ZA	LEVER					
231-1	RUW146ZA	SPRING					
232	1DR0011ZB	MAIN PULLEY					
233	RDV90ZB	BELT					
234	RDG5769ZA	REEL TABLE GEAR					
235	RUQ111ZB	SPRING					
236	RUW145ZA	SPRING					
237	1UB0090ZA	ROD					
237-1	RUB512ZB	ROD					
238	RDG5773ZB	GEAR					
239	RUQ112ZA	SPRING					
240	RUS609ZC	TAPE PRESSURE SPRING					

# EXPLODED VIEW

- Mechanical parts
- DECK 2

A  
B  
C  
D  
E  
F



**Note:**  
When changing mechanism parts, apply the specified grease to areas marked "x x" as shown in the drawing.

Ref. No.	Part Name	Part No.
A	FLOIL AK-152	SZZ0L18
C	FLOIL947P	RZZ0L02

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REPLACEMENT PARTS LIST

Notes : \* Important safety notice:

Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

\* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)

Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)					
IC1	AN7384	ELECTRIC VOLUME		Q915	2SA1309A-R	TRANSISTOR	
IC2	AN7351K	PLAYBACK/REC AMP		Q916	DTC114ESTP	TRANSISTOR	
IC3	M5218L	HEADPHONES AMP		Q917	2SB621A-R	TRANSISTOR	$\Delta$
IC4	M5218L	SIGNAL LEVEL DET.		Q918	DTC114ESTP	TRANSISTOR	
IC351	UPC1297CA	DOLBY HX PRO		Q919	2SB621A-R	TRANSISTOR	$\Delta$
IC401	CXA1331S	DOLBY B/C NR		Q920	DTC114ESTP	TRANSISTOR	
IC801	M5218L	TPS AMP		Q921	2SA1309A-R	TRANSISTOR	
IC901	M50942-510SP	MICROCOMPUTER		Q922	DTC114ESTP	TRANSISTOR	
IC902	M50253P	SYSTEM CONTROL		Q923	2SB621A-R	TRANSISTOR	$\Delta$
IC951	LB9051A-WD	HALL (DECK1)		Q924	DTC114ESTP	TRANSISTOR	
IC971	LB9051A-WD	HALL (DECK2)				DIODE (S)	
		TRANSISTOR(S)		D1, 2	MA167	DIODE	
				D3, 4	MA165	DIODE	
				D351, 352	MA165	DIODE	
				D353	MTZJ5R68TA	DIODE	
Q1-4	2SJ164PQRTA	TRANSISTOR		D354, 355	MA165	DIODE	
Q5-8	2SA1309A-R	TRANSISTOR		D601-607	1SR35200TB	DIODE	$\Delta$
Q9-14	2SC3311A-Q	TRANSISTOR		D608	MA165	DIODE	
Q15, 16	2SD1450RSTA	TRANSISTOR		D609	MTZJ6R28TA	DIODE	
Q351, 352	2SC3311A-Q	TRANSISTOR		D610	MTZJ22DTA	DIODE	
Q353	2SA1309A-R	TRANSISTOR		D612, 613	MTZJ9R1CTA	DIODE	
Q354	KSD471ACYGTA	TRANSISTOR		D614-616	1SR35200TB	DIODE	$\Delta$
Q355	2SB1357EFTA	TRANSISTOR		D801	MA165	DIODE	
Q356-358	2SA1309A-R	TRANSISTOR		D901-907	MA165	DIODE	
Q401-404	2SC3311A-Q	TRANSISTOR		D912, 913	MA165	DIODE	$\Delta$
Q601	2SA1309A-R	TRANSISTOR	$\Delta$	D914, 915	MA165	DIODE	
Q602	2SC3311A-Q	TRANSISTOR	$\Delta$	D916, 917	1SR35200TB	DIODE	
Q603	2SD2037EFTA	TRANSISTOR		D918, 919	MA165	DIODE	
Q604	2SB1357EFTA	TRANSISTOR		D922-927	MA165	DIODE	
Q605	2SD2037EFTA	TRANSISTOR		D928	MTZJ5R18TA	DIODE	
Q606	2SB621A-R	TRANSISTOR		D929-931	MA165	DIODE	
Q607	2SD2037EFTA	TRANSISTOR		D951	RVD1SS133TA	DIODE	
Q608	2SB1357EFTA	TRANSISTOR		D971	RVD1SS133TA	DIODE	
Q701	2SC3311A-Q	TRANSISTOR				VARIABLE RESISTOR(S)	
Q801	2SC3311A-Q	TRANSISTOR					
Q901	2SC3311A-Q	TRANSISTOR					
Q902	DTA114ESTP	TRANSISTOR		VR1-4	EVNDXAA00B24	PLAYBACK GAIN ADJ.	
Q904, 905	DTA144ESTP	TRANSISTOR		VR5, 6	EVNDXAA00B14	OVERALL GAIN ADJ.	
Q906	DTA114ESTP	TRANSISTOR		VR351	EVNDXAA00B53	ERASE CURRENT ADJ.	
Q907	2SA1309A-R	TRANSISTOR		VR352, 353	EVNDXAA00B14	OVERALL FREQ. ADJ.	
Q909	2SB621A-R	TRANSISTOR		VR701	EVJ02FF02B15	REC LEVEL CONTROL	
Q910	2SC3311A-Q	TRANSISTOR		VR702	EVJ02SF02G15	BALANCE	
Q911, 912	DTC114ESTP	TRANSISTOR		VR703	EVJ02KF02B53	BIAS CONTROL ADJ.	
Q913	2SB621A-R	TRANSISTOR	$\Delta$	VR901-903	EVNDXAA00B53	TAPE SPEED ADJ.	
Q914	DTC114ESTP	TRANSISTOR					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		COIL (S)		S973	RSH1A90YB-U	R. REC INH. (DECK2)	
				S974	RSH1A90YB-U	F. REC INH. (DECK2)	
L1, 2	SLQX272-1YT	COIL		S975, 976	RSH1A90YB-U	ATS (DECK2)	
L3, 4	SLQX303-1KT	COIL				CONNECTOR(S) AND SOCKET(S)	
L5, 6	RLQB103JT-Y	COIL					
L351	SL09B4-K	COIL		CN2P	SJT30643-V	CONNECTOR(6P)	
L352, 353	SL09B1-Z	COIL		CN2PA	RJS1A6603	CONNECTOR(3P)	
L401, 402	QLM9Z10K	COIL		CN2PB	RJS1A6603	CONNECTOR(3P)	
		TRANSFORMER(S)		CN3	SJSD1005	CONNECTOR(10P)	
				CN4	RJS1A6604	CONNECTOR(4P)	
T1	RTP1K4C008-V	POWER TRANSFORMER	(P, PC) $\Delta$	CN5	RJS7T4ZA	CONNECTOR(7P)	
T1	RTP1K4E014-V	POWER TRANSFORMER	(EB, EG, GN) $\Delta$	CN6	RJS1A6604	CONNECTOR(4P)	
T1	RTP1K4E015-V	POWER TRANSFORMER	(GC, PX) $\Delta$	CN7-9	RJU003K010M1	SOCKET(10P)	
		OSCILLATOR(S)		CN10A	RJS1A6604	CONNECTOR(4P)	
				CN10B	RJS1A6603	CONNECTOR(3P)	
X901	EFOGC4004A4	CERAMIC FILTER(4MHz)		CN11, 12	SJS50581BB	SOCKET(5P)	
		DISPLAY TUBE(S)		CN19A	RJS1A6603	CONNECTOR(3P)	
				CN19B	RJS1A6603	CONNECTOR(3P)	
				CN20	SJS50581BB	SOCKET(5P)	
FL701	RSLO100-F	DISPLAY TUBE	$\Delta$	CP1	SJTD413	CONNECTOR(4P)	
		SWITCH(ES)		CP2	RJP5G18ZA	CONNECTOR(5P)	
				CP7-9	RJT003K010M1	CONNECTOR(10P)	
				CP11, 12	SJT30548BB1	CONNECTOR(5P)	
				CP20	SJT30548BB1	CONNECTOR(5P)	
S701	SSH1238	POWER	$\Delta$			JACK(S)	
S703	EVQ21405R	AUTO REC MUTE (DECK2)					
S704	EVQ21405R	STOP (DECK2)					
S705	EVQ21405R	F. F. <TPS> (DECK2)		JK1	SJF3069N	TERMINAL BOARD	
S706	EVQ21405R	REW. <TPS> (DECK2)		JK3	RJJ33T01	M3 JACK (BLACK)	
S707	EVQ21405R	F. PLAYBACK (DECK2)		JK4, 5	RJJ33TR01	M3 JACK (RED)	
S708	EVQ21405R	R. PLAYBACK (DECK2)		JK701	SJSD16	AC INLET	(P, PC, GN) $\Delta$
S709	EVQ21405R	REC (DECK2)		JK701	SJS9236	AC INLET	(EB, EG, GC, PX) $\Delta$
S710	EVQ21405R	PAUSE (DECK2)		JK702	SJS9331B	AC OUTLET	(P, PC) $\Delta$
S711	EVQ21405R	SYNCHRO START		JK703	SSR187-1	VOLTAGE SELECTOR	(GC, PX) $\Delta$
S712	EVQ21405R	EDITING TAPE SPEED (X1)		JK711	SJJ146B	HEADPHONES JACK	
S713	EVQ21405R	EDITING TAPE SPEED (X2)					
S714	EVQ21405R	DOLBY NR B				GND PART(S)	
S715	EVQ21405R	DOLBY NR C					
S716	EVQ21405R	STOP (DECK1)		E1	SNE1004-1	GND PLATE	
S717	EVQ21405R	F. F. <TPS> (DECK1)		E3	SUSD165	GND SPRING	
S718	EVQ21405R	REW. <TPS> (DECK1)					
S719	EVQ21405R	F. PLAYBACK (DECK1)				FLAT CABLE(S)	
S720	EVQ21405R	R. PLAYBACK (DECK1)					
S723-725	EVQ21405R	REVERSE MODE		W2P	RWJ1806110QQ	FLAT CABLE(6P)	
S726	EVQ21405R	COUNTER RESET2 (DECK2)		W3	RWJ5710200QQ	FLAT CABLE(10P)	
S727	EVQ21405R	COUNTER RESET1 (DECK1)		W4	RWJ1804160QQ	FLAT CABLE(4P)	
S951	RSH1A89ZB-U	MODE (DECK1)		W5	RWJ5707200QQ	FLAT CABLE(7P)	
S952	RSH1A90YB-U	HALF (DECK1)		W6	RWJ1804160QQ	FLAT CABLE(4P)	
S953	RSH1A90YB-U	ATS (DECK1)		W10	RWJ1807300KQ	FLAT CABLE(7P)	
S971	RSH1A89ZB-U	MODE (DECK2)		W19	RWJ1806130KQ	FLAT CABLE(6P)	
S972	RSH1A90YB-U	HALF (DECK2)		W701	RWJ1804040EE	FLAT CABLE(4P)	

# RESISTORS & CAPACITORS

Notes : \* Capacity value are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)  
 \* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS						
R1, 2	ERDS2TJ394	1/4W 390K	R367	ERDS2TJ222	1/4W 2. 2K	R714	ERDS2TJ102	1/4W 1K
R3, 4	ERDS2TJ393	1/4W 39K	R368	ERDS2TJ102	1/4W 1K	R715	ERDS2TJ122	1/4W 1. 2K
R5, 6	ERDS2TJ183T	1/4W 18K	R369	ERDS2TJ822	1/4W 8. 2K	R716	ERDS2TJ152	1/4W 1. 5K
R7, 8	ERDS2TJ225	1/4W 2. 2M	R370	ERDS2TJ563	1/4W 56K	R717	ERDS2TJ182	1/4W 1. 8K
R9, 10	ERDS2TJ332	1/4W 3. 3K	R371	ERDS2TJ103	1/4W 10K	R718	ERDS2TJ222	1/4W 2. 2K
R11, 12	ERDS2TJ102	1/4W 1K	R372	ERDS2TJ563	1/4W 56K	R719	ERDS2TJ332	1/4W 3. 3K
R13, 14	ERDS2TJ332	1/4W 3. 3K	R373	ERDS2TJ103	1/4W 10K	R720	ERDS2TJ472	1/4W 4. 7K
R15, 16	ERDS2TJ561	1/4W 560	R374	ERDS2TJ332	1/4W 3. 3K	R721	ERDS2TJ682T	1/4W 6. 8K
R17, 18	ERDS2TJ101	1/4W 100	R401-404	ERDS2TJ684	1/4W 680K	R722	ERDS2TJ123	1/4W 12K
R19, 20	ERDS2TJ103	1/4W 10K	R405, 406	ERDS2TJ242	1/4W 2. 4K	R723	ERDS2TJ153	1/4W 15K
R21, 22	ERDS2TJ225	1/4W 2. 2M	R407, 408	ERDS2TJ562	1/4W 5. 6K	R724, 725	ERDS2TJ102	1/4W 1K
R23, 24	ERDS2TJ104	1/4W 100K	R409, 410	ERDS2TJ243T	1/4W 24K	R726, 727	ERDS2TJ562	1/4W 5. 6K
R25-28	ERDS2TJ101	1/4W 100	R411, 412	ERDS2TJ561	1/4W 560	R801	ERDS2TJ122	1/4W 1. 2K
R29, 30	ERDS2EJ121	1/4W 120	R413, 414	ERDS2TJ682T	1/4W 6. 8K	R802	ERDS2TJ101	1/4W 100
R31, 32	ERDS2TJ273	1/4W 27K	R415, 416	ERDS2TJ562	1/4W 5. 6K	R803	ERDS2TJ823T	1/4W 82K
R33, 34	ERDS2TJ183T	1/4W 18K	R417	ERDS2TJ151	1/4W 150	R804	ERDS2TJ393	1/4W 39K
R35, 36	ERDS2TJ394	1/4W 390K	R418	ERDS2TJ273	1/4W 27K	R805	ERDS2TJ562	1/4W 5. 6K
R37, 38	ERDS2TJ272T	1/4W 2. 7K	R603	ERDS2TJ472	1/4W 4. 7K △	R806	ERDS2TJ102	1/4W 1K
R39	ERDS2TJ223	1/4W 22K	R604	ERDS2TJ472	1/4W 4. 7K	R807	ERDS2TJ473	1/4W 47K
R40	ERDS2TJ392T	1/4W 3. 9K	R605	ERDS2TJ103	1/4W 10K	R808	ERDS2TJ123	1/4W 12K
R41, 42	ERDS2TJ223	1/4W 22K	R606	ERDS2TJ472	1/4W 4. 7K △	R809	ERDS2TJ103	1/4W 10K
R43, 44	ERDS2TJ472	1/4W 4. 7K	R607, 608	ERDS2TJ102	1/4W 1K	R901	ERDS2TJ472	1/4W 4. 7K
R45, 46	ERDS2TJ562	1/4W 5. 6K	R609, 610	ERD2FCVG100T	1/4W 10 △	R902	ERDS2TJ822	1/4W 8. 2K
R47, 48	ERDS2TJ103	1/4W 10K	R611, 612	ERDS2TJ101	1/4W 100	R903	ERDS2TJ472	1/4W 4. 7K
R49, 50	ERDS2TJ332	1/4W 3. 3K	R613	ERD2FCVG330T	1/4W 33 △	R904	ERDS2TJ122	1/4W 1. 2K
R51, 52	ERDS2TJ122	1/4W 1. 2K	R614	ERDS2TJ222	1/4W 2. 2K △	R905	ERDS2TJ103	1/4W 10K
R53, 54	ERDS2TJ330	1/4W 33	R615	ERDS2TJ101	1/4W 100	R906	ERDS2TJ123	1/4W 12K
R55, 56	ERDS2TJ562	1/4W 5. 6K	R616	ERD2FCVG330T	1/4W 33 △	R907, 908	ERDS2TJ472	1/4W 4. 7K
R57, 58	ERDS2TJ152	1/4W 1. 5K	R617	ERDS2TJ222	1/4W 2. 2K △	R909	ERDS2TJ332	1/4W 3. 3K
R59, 60	ERDS2TJ272T	1/4W 2. 7K	R618	ERDS2TJ181T	1/4W 180	R910	ERDS2TJ272T	1/4W 2. 7K
R61, 62	ERDS2TJ103	1/4W 10K	R619, 620	ERDS2TJ100	1/4W 10 △	R911	ERDS2TJ392T	1/4W 3. 9K
R63, 64	ERDS2TJ104	1/4W 100K	R621, 622	ERD2FCVG100T	1/4W 10 △	R912-914	ERDS2TJ103	1/4W 10K
R65, 66	ERDS2TJ393	1/4W 39K	R623, 624	ERDS2TJ122	1/4W 1. 2K △	R918	ERDS2TJ472	1/4W 4. 7K
R67, 68	ERDS2TJ124T	1/4W 120K	R625, 626	ERDS2TJ820	1/4W 82	R919	ERDS2TJ223	1/4W 22K
R69, 70	ERDS2TJ220T	1/4W 22	R633, 634	ERD2FCVG330T	1/4W 33 △	R920	ERDS2TJ392T	1/4W 3. 9K
R71, 72	ERDS2TJ152	1/4W 1. 5K	R637	ERDS1FVJ150T	1/2W 15 △	R921	ERDS2TJ471	1/4W 470
R83, 84	ERDS2TJ104	1/4W 100K	R701	ERDS2TJ821	1/4W 820	R922, 923	ERDS2TJ103	1/4W 10K
R85, 86	ERDS2TJ183T	1/4W 18K	R702	ERDS2TJ102	1/4W 1K	R924	ERDS2TJ102	1/4W 1K
R301	ERDS2TJ1R0	1/4W 1. 0	R703	ERDS2TJ122	1/4W 1. 2K	R925	ERDS2TJ105T	1/4W 1M
R352, 353	ERDS2TJ183T	1/4W 18K	R704	ERDS2TJ152	1/4W 1. 5K	R926	ERDS2TJ223	1/4W 22K
R354, 355	ERDS2TJ100	1/4W 10	R705	ERDS2TJ182	1/4W 1. 8K	R927	ERDS2TJ472	1/4W 4. 7K
R356	ERDS2TJ471	1/4W 470	R706	ERDS2TJ222	1/4W 2. 2K	R928-930	ERDS2TJ103	1/4W 10K
R357, 358	ERDS2TJ102	1/4W 1K	R707	ERDS2TJ332	1/4W 3. 3K	R931, 932	ERDS2TJ102	1/4W 1K
R361, 362	ERDS2TJ101	1/4W 100	R708	ERDS2TJ472	1/4W 4. 7K	R933	ERDS2TJ182	1/4W 1. 8K
R363, 364	ERDS2TJ154	1/4W 150K	R709	ERDS2TJ682T	1/4W 6. 8K	R934	ERDS2TJ272T	1/4W 2. 7K
R365, 366	ERDS2TJ153	1/4W 15K	R710	ERDS2TJ123	1/4W 12K	R935, 936	ERDS2TJ100	1/4W 10
			R711	ERDS2TJ223	1/4W 22K	R937-941	ERDS2TJ472	1/4W 4. 7K
			R712	ERDS2TJ683	1/4W 68K	R942	ERDS2TJ822	1/4W 8. 2K
			R713	ERDS2TJ821	1/4W 820	R943	ERDS2TJ223	1/4W 22K △

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R944	ERDS2TJ821	1/4W 820	C24	ECEA1AU101	10V 100U	C613, 614	ECKR1H103ZF5	50V 0.01U
R945	ERDS2TJ221	1/4W 220	C25, 26	ECQB1H472JF3	50V 4700P	C615, 616	ECEA1UJ220	35V 22U △
R946	ERDS2TJ103	1/4W 10K	C27, 28	ECQB1H223JF3	50V 0.022U	C617, 618	ECKR1H103ZF5	50V 0.01U
R947	ERDS2TJ392T	1/4W 3.9K	C29, 30	ECQB1H103JF3	50V 0.01U	C619, 620	ECA1AM102B	10V 1000U
R948	ERDS2TJ184T	1/4W 180K	C31, 32	ECQB1H223JF3	50V 0.022U	C621, 622	ECEA1CKA470B	16V 47U
R949	ERDS2TJ103	1/4W 10K	C33, 34	ECQV1H563JZ3	50V 0.056U	C623, 624	ECBT1E103ZF	25V 0.01U
R950	ERDS2TJ223	1/4W 22K △	C35, 36	ECQB1H153JF3	50V 0.015U	C625, 626	ECKR1H103ZF5	50V 0.01U
R951	ERDS2TJ821	1/4W 820	C37, 38	ECBT1H181KB5	50V 180P	C701	ECKR1H103ZF5	50V 0.01U
R952	ERDS2TJ223	1/4W 22K △	C39, 40	ECEA1HKA47B	50V 0.47U	C702	ECBT1E103ZF	25V 0.01U
R953	ERDS2TJ821	1/4W 820	C41, 42	ECQB1H153JF3	50V 0.015U	C801	ECQB1H822JF3	50V 8200P
R954	ERDS2TJ103	1/4W 10K	C43, 44	ECEA1EKA4R7B	25V 4.7U	C802	ECEA1CKA100B	16V 10U
R955	ERDS2TJ332	1/4W 3.3K	C45, 46	ECBT1H561KB5	50V 560P	C803	ECCR1H470K5	50V 47P
R956	ERDS2TJ103	1/4W 10K	C47, 48	ECKR2H121KB5	500V 120P	C804	ECEA1HKA2R2B	50V 2.2U
R957	ERDS2TJ392T	1/4W 3.9K	C49, 50	ECQV1H104JZ3	50V 0.1U	C901	ECA0JM222B	6.3V 2200U
R958	ERDS2TJ184T	1/4W 180K	C51, 52	ECEA1CKA470B	16V 47U	C902, 903	ECKR1H103ZF5	50V 0.01U
R959	ERDS2TJ103	1/4W 10K	C53, 54	ECBT1H391KB5	50V 390P	C904	ECEA1EKA4R7B	25V 4.7U
R960	ERDS2TJ223	1/4W 22K △	C55, 56	ECBT1C472KR5	16V 4700P	C905	ECEA1HKA010B	50V 1U
R962	ERDS2TJ223	1/4W 22K	C57, 58	ECQB1H153JF3	50V 0.015U	C906	ECEA1CKA220B	16V 22U
R963	ERDS2TJ562	1/4W 5.6K	C351	ECQP1153JZ	100V 0.015U	C907	ECKR1H103ZF5	50V 0.01U
R964	ERDS2TJ331	1/4W 330	C352	ECEA1EKA4R7B	25V 4.7U			
R965	ERDS2TJ153	1/4W 15K	C353	ECKR1H392KB5	50V 3900P			
R966	ERDS2TJ821	1/4W 820	C354, 355	ECKW1H222KB5	50V 2200P			
R967	ERDS2TJ563	1/4W 56K	C356	ECKD1H682KB	50V 6800P			
R968-970	ERDS2TJ472	1/4W 4.7K	C357	ECKR1H103ZF5	50V 0.01U			
R977	ERDS2TJ222	1/4W 2.2K	C358	ECEA1AU221	10V 220U			
R979	ERDS2TJ103	1/4W 10K	C359	ECKR1H103ZF5	50V 0.01U			
R982	ERDS2TJ473	1/4W 47K	C360	ECKR1H472KB5	50V 4700P			
R983	ERDS2TJ122	1/4W 1.2K	C361	ECKR1H103ZF5	50V 0.01U			
R984	ERDS2TJ272T	1/4W 2.7K	C363, 364	ECKT1H223ZF	50V 0.022U			
R985	ERDS2TJ102	1/4W 1K	C365, 366	ECKR2H821KB5	500V 820P			
R986	ERDS2TJ821	1/4W 820	C367, 368	ECBT1H121KB5	50V 120P			
R988	ERDS2TJ222	1/4W 2.2K	C369, 370	ECQV1H473JZ3	50V 0.047U			
R989, 990	ERDS2TJ103	1/4W 10K	C371, 372	ECQB1H223JF3	50V 0.022U			
R991	ERDS2TJ223	1/4W 22K	C373, 374	ECQB1H103JF3	50V 0.01U			
R992	ERDS2TJ272T	1/4W 2.7K	C375, 376	ECKT1H122KB	50V 1200P			
R993	ERDS2TJ103	1/4W 10K	C377	ECEA1CKA100B	16V 10U			
R994	ERDS2TJ472	1/4W 4.7K	C378, 379	ECCF1H220K	50V 22P			
R995	ERDS2TJ103	1/4W 10K	C381	ECBT1E103ZF	25V 0.01U			
R999	ERDS2TJ103	1/4W 10K	C401, 402	ECKT1H122KB	50V 1200P			
			C403, 404	ECKD1H152KB	50V 1500P			
		CAPACITORS	C405-408	ECQB1H222JF3	50V 2200P			
			C409, 410	ECEA1HUR56B	50V 0.56U			
C1-4	ECEA1HKA010B	50V 1U	C411, 412	ECEA1HKA33B	50V 0.33U			
C5, 6	ECEA1CKA220B	16V 22U	C413, 414	ECEA1EKA4R7B	25V 4.7U			
C7, 8	ECEA1CKA100B	16V 10U	C415, 416	ECEA1CKA100B	16V 10U			
C9, 10	ECBT1H471KB5	50V 470P	C601	ECKR2H682PE	500V 6800P △			
C11, 12	ECBT1H102KB5	50V 1000P	C603, 604	ECA1EM102B	25V 1000U △			
C13, 14	ECEA1AU101	10V 100U	C605	ECEA1EU222B	25V 2200U △			
C15, 16	ECQB1H822JF3	50V 8200P	C606	ECKR2H682PE	500V 6800P △			
C17-20	ECEA1EKA4R7B	25V 4.7U	C607, 608	ECEA1AU471	10V 470U			
C21, 22	ECBT1H471KB5	50V 470P	C609, 610	ECKR1H103ZF5	50V 0.01U			
C23	ECBT1H102KB5	50V 1000P	C612	ECA1HM470B	50V 47U △			